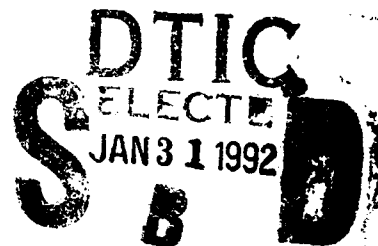


NAVAL POSTGRADUATE SCHOOL

Monterey, California

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THESIS

THE SUITABILITY OF AWARD FEE CONTRACTS FOR THE
ISRAELI MINISTRY OF DEFENSE (MOD)

by

Eidit Givaty

June, 1991

Thesis Advisor:

CDR Rodney Matsushima

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The analysis revealed that there were no barriers that could not be overcome and that the benefits to be gained by incorporating the Award Fee Types of Contracts far outweigh any impediments. It was recommended that the Israeli Ministry of Defense consider incorporating these types of contracts into their procurement regulations after evaluating the results of a test case.

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The Suitability of Award Fee Contracts for the
Israeli Ministry of Defense (MOD)
by

Eidit Givaty

B.A., The Hebrew University, 1975

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of the requirements for the degree of

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ABSTRACT

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The analysis revealed that there were no barriers that could not be overcome and that the benefits to be gained by incorporating the Award Fee Types of Contracts far outweigh any impediments. It was recommended that the Israeli Ministry of Defense consider incorporating these types of contracts into their procurement regulations after evaluating the results of a test case.

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I. INTRODUCTION

A. AREA OF RESEARCH

This thesis will examine the suitability of the Award Fee types of contracts for use by the Israeli Ministry of Defense (MOD). Currently, the Israeli MOD utilizes only Fixed Price, Cost and Incentive type contracts. Incorporating the Award Fee types of contracts into the Israeli MOD regulations could benefit Israel. This thesis will explore the implications associated with the use of the Award Fee concept by the Israeli MOD.

B. RESEARCH QUESTIONS

Primary research question is as follows:

Should the Award Fee types of contracts be used in satisfying the requirements of the Israeli Ministry of Defense?

The subsidiary research questions are as follows:

1. What are the advantages and disadvantages associated with the use of Award Fee type contracts?
2. What are the differences between the acquisition organization of the DoD as characterized by the Navy organization and the Ministry of Defense, with respect to administration of Award Fee contracts?
3. What is the best method to implement Award Fee contracts in the Ministry of Defense?
4. Under which conditions will it be better to use Fixed Price Award Fee type contracts versus Cost Plus Award Fee type contracts?

C. SCOPE OF THE THESIS

This thesis will thoroughly analyze the Award Fee types of contracts and investigate their potential use by the Israeli MOD. Through this research, a guide will be developed that can be used by the Israeli MOD to implement the Award Fee types of contracts in their procurement regulations.

D. METHODOLOGY

The methodology that will be used to complete the thesis will combine the following:

A comprehensive literature review will be conducted to better understand the conditions required for use of all types of contracts in the Department of Defense regulations and their advantages and disadvantages. Personal interviews were conducted with appropriate Department of Defense personnel who use Award Fee contracts to obtain their opinions and insights.

Personal interviews with Israeli MOD representatives, and a short questionnaire to members of the Israeli MOD purchasing department were conducted to identify barriers and potential impediments that would affect the implementation of the Award Fee types of contracts in the Israeli MOD acquisition process.

E. ASSUMPTIONS

The first assumption used in this thesis is that the Federal Acquisition Regulation (FAR) and its supplements pertaining to the use and administration of Award Fee types of contracts provide an appropriate model for use by the Israeli

MOD. Secondly, it is assumed that the Navy's Award Fee administration organization used in the Supervisor of Shipbuilding, Conversion and Repair is an efficient and effective organization for use as a sample.

F. ORGANIZATION

In Chapter II of this thesis, the reader will be introduced to the types of contracts being used by the Israeli Ministry of Defense. The chapter will also identify the appropriate conditions for use of each contract type.

Chapter III will outline the concept of the Award Fee type of contract and its use in the DoD. The chapter discussion will include the principles and procedures for awarding and administering Award Fee types of contracts.

Chapter IV will compare the organizational structure of the U.S. Navy's Supervisor of Shipbuilding, Conversion and Repair with the Israeli MOD. The objective of this chapter is to determine if there are any organizational structural impediments to the implementation of the Award Fee types of contracts into the Israeli MOD regulations.

Chapter V will identify and discuss barriers to implementation of the Award Fee types of contracts in the Israeli MOD. A questionnaire was sent to the Economists and Section Heads in the Department of Procurement and Production within the Israeli MOD to solicit their concerns and identify those barriers.

Chapter VI will present a general guide that can be used for implementing Award Fee contracts in the Israeli MOD.

Chapter VII will summarize the research, provide conclusions and make recommendations.

II. BACKGROUND

A. INTRODUCTION

The purpose of this chapter is to discuss the types of contracts that exist in the Israeli Ministry of Defense (MOD) regulation. Six contract types were developed to support the variety of items and services purchased. The type of contract to be used is chosen according to the complexity of the requirements, the risk involved and the level of unknown costs associated with the pricing of the contract.

Each contract type contains an automatic economic price adjustment clause. The automatic economic price adjustment is effected through the use of a formula which is built into each contract. It calculates the contract price changes between the time of the price agreement to the payment date. The formula includes official indexes which will be used to calculate the economic adjustment and also identifies the effective interval of time to compare the indexes. Because the formula is incorporated in the contract, no additional negotiations between the parties on the economic price adjustment takes place after the award of the contract. This allows the contractor to receive compensation for the influence of inflation and also reduces the contractor's risks associated with unknown economic conditions. The words "price" or "cost" as used in this thesis are defined as the

price or cost at the time the contract price is agreed upon (also called "base-price" or "base-cost").

There are basically two major types of contracts in use by the Israeli MOD, Fixed Price and Cost.

1. Fixed Price Contracts

Fixed Price contracts are contracts in which the price includes the contractor's costs and profit, which are usually negotiated before the contract is awarded. After award, contract payment does not depend on the actual costs experienced by the contractor during performance. Instead, the contractor will be paid only the negotiated contract price.

2. Cost Contracts

Cost contracts are contracts in which the final contract price is not determined until the end of the contract. In these contracts, the Government compensates the contractor for all allowable costs during the fulfillment of the contract plus a negotiated fee.

The following description and discussion of the types of contracts are outlined according to the associated contract risk to the Government. The contracts range from Firm-Fixed Price (minimum risk) to Time and Materials (maximum risk). The descriptions are taken from the Israeli MOD regulations 40.06 Appendix A.

The types of contracts used in the Israeli MOD regulations are comparable to the corresponding types of

contracts used in the United States Department of Defense. Many of the advantages and disadvantages of these types of contracts are based on the Type of Contract Summary, by the United States Army Logistics Management Center in Fort Lee, ALM 33-3350-H(B).

B. FIRM-FIXED-PRICE (FFP)

This type of contract is the preferred type for use by the Government. Upon agreement between the parties, the contract price is fixed. This means that the price does not depend on the contractor's cost of production, profit or loss. The administrative burden upon the contracting parties under this contract type is minimal. While the FFP contract is the preferred type for the Government because all the risk is on the contractor, it can only be used if the price was deemed fair and reasonable by the Government.

The use of this contract type is appropriate for a commercial item or service, a repetitive production item or service, and if the price can be justified to be fair and reasonable [Ref. 1]. The advantages and disadvantages of the FFP contract are summarized below:

1. Advantages

a. It is the easiest and least costly type of contract to administer because it is the contractor's commitment to provide the item or service as specified in the contract (price, specification and schedule), and it is the

Government's commitment to make payment for the final product, as agreed upon in advance.

b. The FFP contract encourages the contractor to be efficient and to economize. It provides the most incentive to the contractor to reduce costs. The contractor's actual profit is increased if there is a positive difference between expected costs and actual costs.

c. Maximum risk for profit or loss is borne by the contractor because the parties agreed upon the price in advance and unexpected costs will not be recovered by the Government. As a result of this, the last advantage of the FFP contract is that it:

d. Allows accurate obligation of funds at the outset.

2. Disadvantages

a. Under the FFP contract, the contractor has no incentive to provide a better quality product than specified in the contract.

b. Because the price is fixed, there is no recovery by the Government if the market price falls or if costs are reduced by the contractor.

c. There is a lack of flexibility in managing the FFP contract. The price is fixed for a specific performance as defined in the contract and any variation must be accomplished by an appropriate change in the contract.

C. TEMPORARY PRICE WITH CEILING

This is a Fixed-Price type of contract used when the price cannot be determined or agreed upon at the outset of work. The parties agree to a temporary price ceiling at the time of the award, and agree to negotiate a fixed price during contract performance. Until the parties agree upon the final fixed price, the temporary price substitutes as the FFP ceiling for obligational purposes. The temporary price cannot be greater than the contractor's proposal. The final fixed price can be lower or equal to the temporary ceiling after negotiations and agreement occur.

The Temporary Price with Ceiling is appropriate only when most of the conditions for the FFP type of contract exist and when the contract cannot be delayed until the pricing process is completed, because there is a need for an urgent critical item [Ref. 1].

1. Advantages and Disadvantages

The Temporary Price with Ceiling has the same advantages and disadvantages as the FFP contract, with one additional disadvantage. The contractor has no incentive to reduce costs during the contract performance period before it changes to an FFP contract. This occurs because the price decision is made when the contractor is already in the production process and the accumulated actual costs will be included in the final price.

Because of its higher risk to the Government, the Temporary Price with Ceiling type of contract is less preferable than the FFP type of contract.

D. CEILING PRICE WITH INCENTIVE or FIXED PRICE INCENTIVE (FPI)

The Ceiling Price with Incentive is a hybrid contract. It functions in a similar manner to a Cost-Plus-Incentive-Fee (CPIF) contract until the costs reach the ceiling price; at that point it essentially becomes a FFP contract. This means that when the contractor's costs are higher than the ceiling price, the price of the contract is no longer based on the cost, but on the negotiated ceiling price. This contract type includes negotiated amount for: "expected costs", "expected profit," "expected price," "share formula" and "ceiling price".

"Expected price" is expected cost plus expected profit. "Expected Cost" is the negotiated estimate of the cost to perform the contract. "Expected profit" is negotiated before the contract award based on the expected costs and the risks involved in performing the contract.

The "ceiling price" is determined by the "expected price" plus an additional amount of no more than 10% of the "expected price". The "share formula" defines the ratio of sharing the overrun or underrun, with respect to the "expected cost", between the Israeli MOD and the contractor. The formula can define different ratios for different deviations from the

"expected cost". The Government's share can be higher for costs closer to expected cost and lower for costs farther from the expected cost.

The decision on final price:

1. When the actual costs are below the "expected cost", the final price will be actual costs plus "expected profit", plus the contractor's share of the difference between "expected costs" and actual costs. In this case the final price will always be less than the "expected price".
2. When the actual costs are above the "expected costs" but below the "ceiling price", the final price will be actual costs plus "expected profit", minus the contractor's share of the difference between actual costs and "expected cost". This reduction should not exceed the "expected profit" amount. The final price must not be greater than the "ceiling price".
3. When the actual costs are above the "ceiling price", the final price will be the "ceiling price".

It is appropriate to use this type of contract when the price is difficult to justify but a general estimation of the price can be made or there is a limit above which the item or service is not worth the price [Ref. 1]. This type of contract provides an incentive for the contractor to be efficient and to reduce costs below the "expected costs" amount by increasing the profit to the contractor when the costs are reduced. When there is an expense overrun, the Government shares the risk and cost with the contractor. However, the FPI contract protects the Government from overrun costs over the ceiling price.

1. Advantages and Disadvantages

The Advantages and Disadvantages of the FPI contract are:

1. Advantages

- a. Provide timely and positive incentive to the contractor to control costs.
- b. Can enable the Government to obtain material and/or services at a lower cost than might otherwise, normally be expected.
- c. Contractor has full liability for all incurred costs beyond the price ceiling.
- d. Share formula may be varied to fit the specific situation, commensurate with degree of confidence parties have in range of possible cost of performance, and variations above or below target cost ("expected cost"). [Ref. 2:p. 9]

2. Disadvantages

- a. Requires establishing realistic, target cost ("expected costs") where there is an equal probability of an underrun or overrun.
- b. Within limit of price ceiling, the Government shares cost of overrun with contractor.
- c. Unrealistic target price can invite reversing the goal of the incentive provision, i.e., cost overrun may not be reflective of lack of cost control by contractor, or cost underrun reflective of outstanding cost control by a contractor. [Ref. 2:p. 9]

E. COST-PLUS-INCENTIVE-FEE (CPIF)

This is a cost type contract which offers the contractor an incentive to reduce costs by increasing the fee when actual costs are kept below expected costs. The incentive is limited because the contractor will be paid for all his allowable costs and the size of the fee he can earn is limited. This

contract includes negotiated amount for: "expected costs", "expected price", "expected fee", "minimum fee", "maximum fee" and "share formula".

The "expected price" is the "expected cost" plus "expected fee" (which is negotiated based on the expected costs and the performance risk). The "share formula" defines the ratio of sharing the difference between "expected cost" and actual cost, by the Government and the contractor. The formula can define different ratios for different deviations of "expected cost". The Government's share can be higher for those costs closer to "expected cost" and lower for those costs farther from the "expected cost".

The final contract price is determined in the following manner:

1. When the actual costs are below the "expected cost", the final price will be the sum of the actual costs plus "expected fee" plus the contractor's share of the difference between "expected costs" and actual costs. The final fee ("expected fee" plus contractor share) must not exceed the "maximum fee".
2. When the actual costs are higher than the "expected costs", the final price will be the sum of the actual costs plus "expected fee" minus the contractor's share of the difference between actual costs and "expected cost". The final fee ("expected fee" minus contractor share) must be no less than the "minimum fee".

This type of contract is appropriate for circumstances in which the costs of performance can be estimated. However, there are many unknown elements which make it very risky (for the contractor) to use any Fixed-Price type of contract [Ref. 1].

The CPIF is an incentive type of contract within the range between the "maximum fee" and "minimum fee". Because the fee increases when the contractor's costs are lower than the "expected costs", the contractor is motivated to be more efficient and to reduce costs. When the contractor's costs are such that the fee will be higher than the "maximum fee" or lower than the "minimum fee", the contract type, essentially changes into a Cost-Plus-Fixed-Fee (CPFF) contract. Under this condition, the contractor is compensated for his costs, but the fee is fixed. The fixed fee is either the "maximum fee" or the "minimum fee", depending on the situation.

The advantages and disadvantages of the CPIF contract are:

1. Advantages

- a. Encourages economical, efficient and effective contractor performance when a cost-reimbursement type contract is necessary.
- b. Mutual benefit potential for Government and contractor.
[Ref. 2:p. 19]

2. Disadvantages

- a. Costly auditing and administrative burden.
- b. Contractor must have adequate accounting system for timely and proper cost determination. [Ref. 2:p. 19]

F. COST-PLUS-FIXED-FEE (CPFF)

The Cost-Plus-Fixed-Fee type contract is designed for situations in which it is very difficult to reasonably estimate of the costs. All the cost risk is on the Government [Ref. 1]. The contract contains a budget limit which should not be overrun. When the contractor's costs approach a

certain level as defined in the contract, they must notify the Government and obtain permission to continue. This is done formally by increasing the contract budget ceiling. Otherwise, work must stop when the costs to the Government have reached the budget limit. The contractor is not bound to complete contract performance once the budget limit is reached. The only incentive for the contractor to reduce costs is the fact that the fee is fixed and not related to the actual costs. The contractor's profit is measured not only by the amount of fee received, but also by the percentage of that fee over costs. The percentage of fee will be greater as the costs are reduced. Changes in the budget cost of the contract must be coordinated with appropriate changes in the fixed fee. The advantages and disadvantages of the CPFF type contract are:

1. Advantages

May proceed with vague scope and indefinite specifications [Ref. 2:p. 23].

2. Disadvantages

- a. Provides minimum incentive to the contractor to control costs.
- b. Expensive to administer.
- c. Essentially, profit w/o risk to contractor.
- d. Contractor must have an adequate accounting system.
- e. Least contractor responsibility for costs. [Ref. 2:p. 23]

G. TIME AND MATERIALS (T&M)

This type of contract is essentially a Cost type contract in which the price per labor hour, the fee per labor hour, and material percentage fee are negotiated in advance. The contract payments are determined by actual hours expended in the performance of the contract and by all material costs plus a percentage of the material fee.

There is a budget limit in the contract which the contractor must not exceed, but there is no contractor obligation for a final product.

This is the least preferred type of contract; its use is restricted to Research & Development, maintenance and professional advice [Ref. 1]. The advantages and disadvantages of a T&M contract are:

1. Advantages

The only advantage of this type of contract is that it can be used in special situations which fit no other contract type.

2. Disadvantages

- a. Require appropriate surveillance by the Government during performance to preclude inefficiency or waste by contractor.
- b. Danger of contractor running up time to increase profit.
- c. Expensive to administer.
- d. Contractor must have an adequate accounting system.
- e. No positive profit incentive to control costs or to manage labor force efficiently. [Ref. 2:p. 25]

H. PROBLEMS IN THE ISRAELI PROCUREMENT PROCESS

Mr. Zvi Lavi, the former head of Economic Consult in the Department Of Procurement and Production (DOPP) of the Israeli MOD [Ref. 3], said that even though these contract types include incentives for the contractor to increase efficiency and reduce cost, none of them provide an incentive for better performance than what is required by the specifications of the contract. These specifications are designed as minimum requirements for the contract. There are times when better performance or increased management attention to specific areas is desirable. Therefore, it may be advantageous for the Government to pay a higher contract price for better performance in these areas. He also said that, given the types of contracts that exist in Israel today, the Government has no contractual means of controlling and influencing the contractor's goals and objectives during the performance of the contract. Elements, such as development of a better quality assurance system, or accounting of costs for future purchases, cannot be identified as conditions of acceptance and cannot be controlled or influenced by the Government.

The United States literature discusses the advantages and disadvantages of the types of contracts which exist in the Israeli MOD regulation. These types, which can be divided into three categories: Fixed Price, Cost, and Incentive Contracts, are only some of the types of contracts that exist in the DOD regulations. Even though the Israeli MOD's

existing types of contracts fulfill the requirements for the purchasing process, there continues to be a need for more flexibility by top managers to control and administer the contract.

In his study, Jerry Y. Brown summarizes the limitation of the types of contracts discussed in this chapter and justifies the need for a new type of contract:

The CPFF type did not create an incentive for effective cost control and management, and the FFP contract imposed an inordinate risk on the contractor for programs lacking highly definitized specifications and employing state-of-the-art technology . . . Incentive contracting, to some degree, solved the CPFF-FFP dilemma, but a void still remained. There were areas that were not subject to objective measurement and hence was no method for applying incentives. [Ref. 4:p. 3]

Mr. Brown also reviewed the Award Fee contract in his study as the type of contract that can fill the contracting void.

I. SUMMARY

This chapter provided background on the types of contracts used by the Israeli Ministry of Defense when purchasing supplies and services. The discussion was an English translation of the Israeli Ministry of Defense's procurement regulations. This chapter also developed the reasons why there is potential benefit to be received by the Israeli MOD if they adopted the Award Fee types of contracts and added them to their regulations.

The next chapter will outline the concept of the Award fee type of contract as a contract type that can fill the

contracting void. The discussion will include principles and procedures for awarding and administering Award Fee type of contract as it is used in the DoD.

III. THE AWARD FEE CONCEPT AND ITS USE IN THE DEPARTMENT OF DEFENSE

A. AWARD FEE CONTRACT CONCEPT

The Award Fee concept is used in incentive type contracts, in an effort to motivate contractors to improve their performance in specific categories beyond the minimum requirements outlined in the contract. These categories are selected by the Government for special emphasis by the contractor. There is a separate pool of money that is designated for award to the contractor for evaluated performance in these specified categories. Based on a subjective evaluation process, the Government can withhold a portion of the award fee due to less than excellent performance.

The Award Fee concept can be used with both fixed-price and cost-type contracts.

The Cost-Plus-Award-Fee (CPAF) contract:

. . . (i)s a cost-reimbursement contract that provides a fee consisting of (1) a base amount fixed at inception of the contract and (2) an award amount that the contractor may earn in whole or in part during performance and that is sufficient to provide motivation for excellence in such areas as quality, timeliness, technical ingenuity, and cost-effective management. [Ref. 5]

The Fixed-Price-Award-Fee (FPAF) contract is not an official type of contract (it is not specified in the FAR), but it is used as a hybrid contract. The award fee portion is used in the same manner as the Cost Plus Award Fee contract.

1. Objectives of the Award Fee Contract

Award Fee contracts are designed to provide a monetary incentive to the contractor for better than the minimum acceptable performance in specifically chosen areas.

The usual criteria includes, but is not limited to: management, performance, quality of work, and cost (cost is not one of the criteria in FPAF). Each criterion must be specifically addressed in the contract along with the method for its evaluation.

The decision, with respect to amount of the award fee given to the contractor, is subjective and cannot be disputed under the rules of this contract type.

An important element of the Award Fee concept is the flexibility it provides the Government to unilaterally change the emphasis of the criteria for which the award fee is given.

It also improves the communications between the Government and the contractor by providing an effective feedback mechanism. As Brown states in his paper:

The nature of the Award Fee concept allows the government to provide formalized periodic feedback to the contractor on how he is progressing. It also provides the government with an opportunity to make periodic thorough evaluations of progress, and cause corrective action in areas under evaluation if performance is not as expected. [Ref. 4:p. 7]

2. Award-Fee Plan

Every Award Fee contract must include an Award Fee plan which specifies:

- a. The functional areas to evaluate,

- b. The criteria and weighted formula to calculate the amount of the award-fee,
- c. A list of the members of the Award Review Board(ARB), and
- d. The Award Fee Determination Official(AFDO).

The dollar amount of the total award-fee pool and the dollar amount designated for each evaluation period is outlined in the Award Fee Plan. The plan addresses whether or not the portion of the award fee withheld by the Government for an evaluation period will be rolled-over into the next evaluation period. The Award Fee Plan will also provide for reclama procedures by the contractor and defines the time limits for each step of the evaluation along with the procedures for approval and payment.

3. Function and Process in the Administration of Award Fee Type Contract

The following is a list of functions required in the administration of award fee contracts as described in the Base Level Award Fee Guide of the Air Force Logistics Management Center:

- Monitoring performance
- Communicate with contractor
- Convening the performance evaluation board
- Computing the award fee
- Role of the fee determining official
- Paying the contractor
- Providing feedback to the contractor [Ref. 6:p. 45]

a. Monitoring Performance

The success of the entire Award Fee process is based on the proper monitoring of the contractor's performance. This is done by the performance monitoring activity. The performance monitoring must begin from the first day of the evaluation period and continue constantly throughout the entire evaluation period, culminating with a written evaluation of the contractor's performance.

b. Communicating with the Contractor

Part of the function of the performance monitoring activity is to communicate with the contractor, by maintaining day-to-day contact, monitoring performance, discussing performance problems and obtaining all necessary information from the contractor.

c. Convening the Performance Evaluation Board

The members of the ARB meet in order to receive and evaluate reports from the performance monitoring activities and to decide on the amount of the award fee. The meeting must be convened promptly at the end of the evaluation period to prevent delays in approval of the award fee. The members of the ARB read all the reports, question and listen to all explanations from representatives of the functional organization regarding the contractor's performance. Based on this information, and on the contractor's comments, they must evaluate and grade the contractor's performance, and compute

the score for the specific evaluation period according to the formula in the contract.

This process is very detailed and must be well documented. Each category of performance is divided into subcategories. The subcategories are evaluated and separate numerical scores assigned. The category score is a weighted average of the subcategory scores. Finally the score for the evaluation period is the weighted average of the category scores.

d. Computing the Award Fee

The amount of the award fee is computed by multiplying the total score (given in percentage form), by the dollars available in the Award Fee pool.

e. Role of the Award Fee Determining Official (AFDO)

The AFDO, after receiving the ARB recommendation with their rationale, is responsible for the final decision. The AFDO authorizes payment and signs the ARB's letter to the contractor informing him of the decision.

f. Paying the Contractor

The procedure for paying the award fee should be separated from the procedure used to pay the contractor under the basic contract. The award-fee should be paid immediately after the decision has been made, in order to demonstrate the government's appreciation for the contractor's efforts and to provide an incentive to the contractor to continue his management efforts in the identified areas.

Special arrangements are made to achieve prompt payment: the letter signed by the AFDO is hand carried directly to the Accounting and Finance Activity for immediate issuance of the check to the contractor (it can be attached to the contractor's invoice, depending on the contract's terms).

g. Providing Feedback to the Contractor

In order to achieve the objective of satisfying the customer, the contractor must be knowledgeable of his own weaknesses and strengths. He must fully understand the Award Fee requirements. A formal meeting with the contractor at the end of every evaluation period provides the contractor with constructive feedback on his efforts and progress. Since the contractor has no right to appeal the amount of the award fee, it is very important to explain the rationale for the award Fee received.

B. ADMINISTRATION OF AWARD FEE CONTRACTS

The administration of Award Fee contracts plays a very important role towards achieving the objectives of this type of contract.

Because the performance evaluation of the contractor's work is subjective, the contractor must believe and trust that they are being treated fairly by the Government. The evaluation must be conducted in a fair and impartial manner. Otherwise, the contractor may perform as if there is no incentive to do well.

The administration of the award fee contract must be efficient in order to compensate for the additional effort required by the contract. To be worthwhile, the benefit from the award-fee portion must exceed the additional cost of administering it.

1. Organization of Award-Fee Administration

The administration of the award-fee contract should be organized on three basic levels:

- Performance monitoring activities,
- Award Review Board (ARB),
- Award Fee Determination Official (AFDO).

Figure 1 is a flow diagram of the typical organization set up to administer Award Fee contracts.

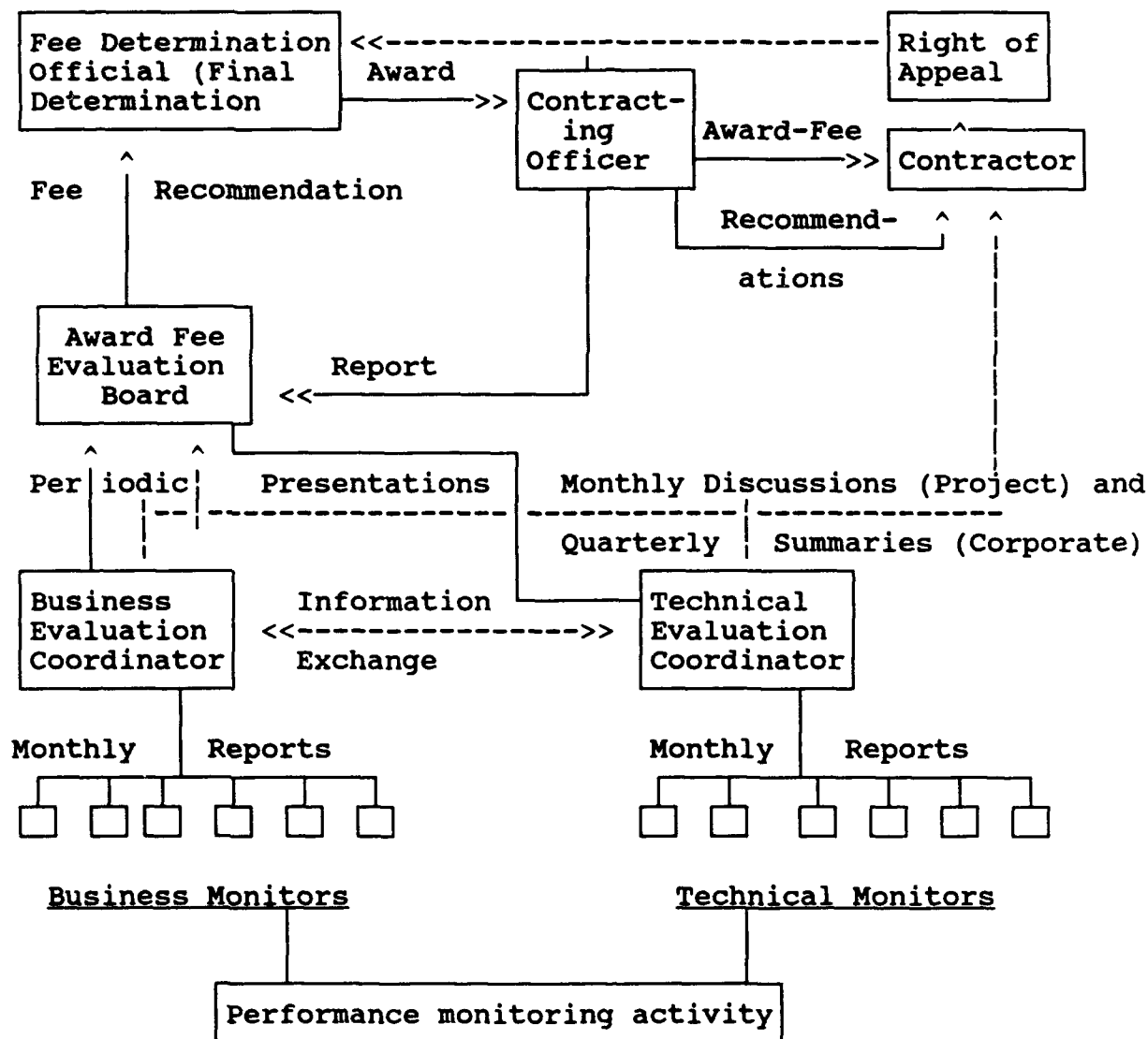


Figure 1
CPAF Information Flow Chart
[Ref. 7:p. 50]

a. Performance Monitoring Activities

This is the lowest level in the award-fee organization. The day-to-day monitoring of the contractor's performance is carried out by specialists on the Administrative Contracting Officer (ACO) or Contracting Officer Representative (COR) staff who survey the contractor's performance within their specialty area. These specialists must be familiar with the performance criteria listed in the award-fee plan in order to monitor the contractor's performance. They must document on a periodic report, their observations of the contractor's performance. They rank the performance according to the award-fee plan criteria and forward it to the ARB.

b. Award Review Board (ARB)

The Award Review Board (ARB) is also called the Performance Evaluation Board (PEB). The voting members of the ARB are normally the heads of the organizations which directly benefit from the contract. The advisors are typically the heads of the functional organization that monitors the contractor's performance.

At the end of each evaluation period, the ARB prepares a written recommendation on the amount of award-fee to be given to the contractor and forwards the recommendation to the AFDO for final approval.

The members of the ARB must become familiar with the contract requirements and their organization's level of

satisfaction regarding the contractor's performance. Based on their experience and the reports they receive from the performance monitoring activity, the ARB members recommend the amount of award-fee to be paid to the contractor.

They also recommend necessary changes in the award-fee plan to the AFDO (such as changes in the weighted factors) based on the contractor's performance in the last evaluation period and based on the area of desired emphasis for the next period.

The contractor can send a representative to the ARB proceedings even though he has no voting rights on the board. The ARB decision must be:

With sufficient supporting documentation to cause a reaction at the contractor's corporate level. The award-fee earned is only the result of the Board's action in determining rewards while the rationale serves as a springboard for motivating the contractor to improve efficient and economical performance. [Ref. 8:p. 9]

c. Award Fee Determination Official (AFDO)

This is the highest level in the organization of the award-fee administration. This official should be the senior ranking official who

. . . influence[s] the contractor to commit its top management . . . to have an individual who has direct interest in the quality of the service, but is far enough removed from observing daily performance, to allow for a fair fee determination based on recommendation of the Performance Evaluation Board. [Ref. 6:p. 57]

The AFDO determines the amount of the award-fee and authorizes the Accounting and Finance Activity to pay it. The AFDO also approves any changes in the award-fee plan and

is responsible for giving the contractor feedback on strengths and weaknesses during the evaluation period.

C. CHANGES IN THE BASIC CONTRACT

The amount of Award Fee is linked to the price of the contract. If it is too high, the contractor might concentrate only on the award-fee requirements instead of the contract requirements. If it is too low, the contractor may not see it as an incentive.

Every significant change in the total amount of the basic contract must be accompanied by an appropriate change in the amount of the award-fee.

D. CONDITIONS FOR USE OF AWARD FEE CONTRACTS

The general conditions for the use of the Award Fee method of acquisition, as Mr. Hurt explains them, are:

1. When the government's principal managers determine that uncertainties exist which preclude rigorous specifications of contract performance parameters or price, thereby introducing significant program management problems; and
2. When the magnitude of the contracted work or potential benefit to the government is sufficient to justify the administrative costs of the Award Fee procedure. [Ref. 9:p. 49]

The decision to use each of the Award Fee types of contract (Fixed Price or Cost) should be based on the following factors:

1. FPAF

- a. Fixed Price type of contract is found appropriate for use.

- b. Flexibility in managing the contract is needed and is not achieved under any other kind of incentive Fixed Price contract.

In addition to these, the Base-Level Award Fee Guide identified the following conditions:

- c. High Visibility Service (Mission Essential)
- d. High Dollar Value Service (at least \$200k annually)
- e. A contract Service with a History of performance problems. [Ref. 6:p. 4]

2. CPAF

- a. A cost-reimbursement type contract is found necessary. The use of a cost-reimbursement contract is almost always associated with performance requirements that are difficult to shape and articulate in detail.
- b. Uncertainty grounded in unknowns provide little assurance that a higher-risk contract type would favor either the government or the contractor.
- c. The work to be performed is such that specific quantitative or objective measurement may not be feasible, and it extends over a sufficient period of time for the award fee features to be used effectively.
- d. Contractor performance involves multiple tasks or functions within a broad range or scope of work.
- e. Any additional administrative effort and cost required to monitor and evaluate performance are justified by the expected benefit.
- f. Flexibility not achievable by firm-fixed-price contract is needed.
- g. Other type incentive contracts are not suitable to the function.
- h. The work is such that encouragement of contractor innovation is likely to result in a tangible pay-back to the government. [Ref. 6:p. 4]

E. ADVANTAGES AND DISADVANTAGES

The Award Fee type of contract, like all contracts, has advantages and disadvantages. They are:

1. Advantages

- a. Gives the Government more flexibility in managing the contract, by allowing them to take into consideration the dynamic process of performing the contract and providing room for human judgment.
- b. Enhances communication and cooperation between the Government and the contractor by giving the contractor continuous feedback during performance of the contract.
- c. Allows the Government an active management role.
- d. Helps to recognize limitations of the contractor's management ability to control contract performance.

2. Disadvantages

- a. Causes a significant administrative burden in developing, implementing and managing the contract.
- b. Is difficult to maintain timely information necessary for evaluation and award. This is important to assure efficient performance feedback which motivates the contractor.
- c. Can create doubt in the contractor that the evaluation process is not objective, therefore causing undesirable results.

Personal interviews with five contract administrators reinforced the above advantages and disadvantages. These interviews revealed the following additional comments:

- (1) The contractors are highly motivated towards better performance when the evaluation period is reasonable and not too long and also when the amount of the Award Fee is sufficient [Refs. 10, 11, and 12].
- (2) In Umbrella contracts that include an award-fee evaluation for every delivery order, it is too complicated and time-consuming to evaluate every delivery order separately. In this case, the contractor receives the award fee too late for it to be

perceived as a motivating factor. The award fee can be perceived as an unnecessary headache [Ref. 13].

- (3) The administration of an award-fee contract is complicated and must be done efficiently in order to obtain favorable results. If the evaluation process is not appropriately conducted or the effort involved in achieving it is too high compared to the amount of the award, the contractor will lose this motivation to improve performance.
- (4) In contracts for end-products or continual services (when end results are important) the contractor can be better motivated if the portion of the award fee which has been withheld from the contractor is rolled-over into the next period. In this case, the contractor, motivated by a greater amount in the next period, will contribute a greater effort towards achieving the award fee, thereby giving the Government the best result [Ref. 14].

F. SUMMARY

This chapter provided background on the Award Fee type of contract and the procedures for awarding and administering it in the Department of Defense.

The next chapter will outline in general terms the typical acquisition process, discuss and compare the Israeli MOD organization and a DoD contract administration activity to determine if there are any organizational structural impediments to the implement of Award Fee types of contracts in the Israeli MOD regulations.

IV. COMPARISON OF ORGANIZATIONAL STRUCTURES: UNITED STATES NAVY SUPERVISOR OF SHIPBUILDING CONVERSION AND REPAIR VERSUS THE ISRAELI MINISTRY OF DEFENSE

A. INTRODUCTION

This chapter is organized into four separate sections. The first section will outline in general terms the typical acquisition process which is being followed by both the United States and Israel. The second section will outline and discuss how a DoD contract administration activity is organized to administer contracts and in particular Award Fee type contracts. The United States Navy's Supervisor of Shipbuilding Conversion and Repair (SUPSHIP) was chosen because of its unique similarities to the Israeli Ministry of Defense in terms of size and functions. The third section will outline and discuss how the Israeli Ministry of Defense (MOD) is organized to manage the contracting function for Israel. Finally, the fourth section is a comparison of the two activities, the purpose of which is to determine if there are any organizational structural impediments to the implementation of the Award Fee types of contracts into the Israeli MOD regulations.

B. THE ACQUISITION PROCESS

The acquisition process is characterized as the typical chain of events that occur when acquiring supplies and services. The steps in the acquisition process are basically

the same when comparing Israel and the United States. The major difference is in the amount of literature available for research. Therefore, this discussion is based on American literature and the Israeli work experience of the researcher. The typical steps in the acquisition process can be divided into the following phases:

- * Identification of Needs
- * Concept Exploration/Definition
- * Specification Development
- * Funding
- * Procurement Request
- * Market Research
- * Contract Solicitation
- * Bid/Proposal Evaluation
- * Contract Negotiations
- * Contract Award
- * Contract Administration
- * Government Acceptance
- * Contract Payment
- * Contract Closeout

1. Identification of Needs

This is the first phase of the acquisition process, which require the examination of the projected threat and the ability of the existing systems or facilities to meet the threat.

This is done by the professionals in each specific area, based on an evaluation of the current situation and of its potential dangers in order to meet defense objectives.

2. Concept Exploration/Definition

The objective of this phase is to select the most promising system concepts. The Program Manager's Guide explains the procedure for this phase:

The PM will solicit and evaluate alternative concepts that will meet or exceed the need expressed in the Mission Need Statement. [Ref. 15:pp. 1-13]

The professionals will define the best alternative under budget and schedule limitations.

3. Specification Development

The next step in the process is to develop the specifications for the desired system. The FAR defines a specification as:

A description of the technical requirement for a material, product, or service that includes the criteria for determining that the requirement has been met [Ref. 16:p. 10.001]

The Program Manager's says:

The system specification is used to state technical and mission requirements for the system, allocate requirements to functional areas, and define interfaces between functional areas. [Ref. 15:pp. 4-39]

4. Funding

Funding is the act of reserving money for a specific purpose. The funds may not be used for anything else. Stanley N. Sherman states that:

The funding level of a contract operates as a legal limitation on the total obligation of the Government to make payments. [Ref. 17:p. 282]

5. Procurement Request

The procurement request begins the procurement phase of the acquisition process. It should include the specifications and the funding for the requirement. The Program Manager's Guide defines it as:

The most vital document that supports the communication between the PM and the contracting officer . . . The purpose of the Procurement request is to provide information that: (1) describes the required supplies requirement or services clearly and completely . . . (2) support any contractual recommendations it may contain. [Ref. 15:pp. 4-35]

6. Market Research

The objective of this phase is to locate potential suppliers for the specific purchase by evaluating their capabilities, as explained in the Reference book for competition requirements:

Attempts to ascertain if qualified sources capable of satisfying the Government requirements exist. Action taken to find potential sources to fill the Department of Defense acquisition requirements. [Ref. 18:p. 5].

An additional explanation to Market Research can be found in the FAR definition:

The process used for collecting and analyzing information about the entire market available to satisfy the minimum agency needs to arrive at the most suitable approach to acquiring, distributing, and supporting supplies and services. [Ref. 16:p. 10.001]

7. Contract Solicitation

This is a formal request by the Government to potential contractors for an offer. It communicates the

Government's needs in the form of purchase descriptions or specifications and solicits bids, proposals or quotes.

8. Bid/Proposal Evaluation

In this phase, the Government will evaluate the offers to find the best-valued offer. This includes tradeoffs of cost and technical parameters. The FAR defines proposal evaluation as:

An assessment of both the proposal and the offeror's ability (as conveyed by the proposal) to successfully accomplish the prospective contract. An agency shall evaluate competitive proposals solely on the factors specified in the solicitation. [Ref. 16:p. 15.608]

The complexity of the proposal evaluation depends on the complexity of the system being purchased and on the purchase method used (sealed bid or negotiation). The Department of Defense Directive emphasizes that the evaluation must consider:

The technical, schedule, operational readiness and support, and financial risk inherent in a proposal. [Ref. 19:p. 20]

9. Contract Negotiations

The FAR defines negotiations as:

Contracting through the use of either competitive or other-than-competitive proposals and discussions. Any contract awarded without using sealed bidding procedures is a negotiated contract [Ref. 16:p. 15.101]

The Government, after evaluating the offers, negotiates the final price and comes to agreement on the contract terms and conditions with the potential contractor.

10. Contract Award

This is a legal notification to the contractor of the Government's acceptance of their offer. The contract document outlines the agreement between the parties.

11. Contract Administration

The contract administration phase starts after contract award and ends when the contract is closed. Personnel who work in contract administration ensure that the Government receives the supplies and services outlined by the terms and conditions of the contract. Stanley N. Sherman outlines six broad categories that are included in contract administration responsibilities:

- * Monitoring and surveillance functions
- * Reports and services to procuring office and contractor
- * Reviews and audits of contractor internal management system
- * Formal decisions and actions affecting contractors
- * Direction, negotiations, and agreements
- * Program-sensitive contract management functions. [Ref. 17:p. 142]

12. Government Acceptance

Government acceptance means the Government has taken ownership of the end item and released the contractor from any further obligations on the contract.

13. Contract Payment

This phase accomplishes the Government's commitment in the contract. The FAR defines Invoice Payment, as:

A Government disbursement of monies to a contractor under a contract or other authorization for supplies or services accepted by the Government. [Ref. 16:p. 32.902]

14. Contract Closeout

The last phase in the procurement process is called contract closeout which signifies that the contractor and the government have fulfilled all obligations outlined in the contract. The completed contract file is normally retained for a period of time after the contract is closed.

C. THE SUPERVISOR OF SHIPBUILDING CONVERSION AND REPAIR, USN

The Supervisor of Shipbuilding Conversion and Repair, USN was chosen for comparison with the Israeli MOD because of the following factors. First, a SUPSHIP can range in size from approximately 70 personnel at the smallest SUPSHIP to 550 at the largest SUPSHIP. This compares favorably with the 600 personnel in the Israeli MOD. Second, the SUPSHIPS have the authority to both award contracts, in the form of Job Orders against Master Ship Repair Agreements, and to administer contracts awarded to those companies under their cognizance. Third, the SUPSHIPS award and administer Award Fee types of contracts.

The SUPSHIP is organized into various departments as depicted in Figure 1.

1. Contract Department

The Contract Department is responsible for the:

Administration of all matters relating to contractual accounting and financial aspects of contracts and the award and administration of Master Ship Repair Agreements and Job Orders. [Ref. 20:p. 15]

Figure 2 shows the Contract Department organization. It consists of 4 divisions: Procurement Division, Contract Administration Division, Proposal Evaluation Division, and Budget & Finance Division.

a. Procurement Division

The Procurement Division is established if there is a need to award contracts for the repair of Naval ships. Otherwise, it may be combined with the Administating Department. The typical responsibilities of this division include:

- * Entering into Master Ship Repair Agreements (MSRA)
- * Accomplishing the procurement for repair and overhaul services under MSRA's including:
 - Determining the method of procurement (sealed bid or negotiation).
 - Preparing and distributing the solicitation package (IFB, RFP, drawings, specifications, etc.).
 - Receiving, storing, opening and tabulating bids or offers received.
 - Requesting pre-award survey as required.
 - Selecting the source.
 - Preparing and obtaining business clearance.
 - Negotiating and awarding the job order. [Ref. 20:p. 15]

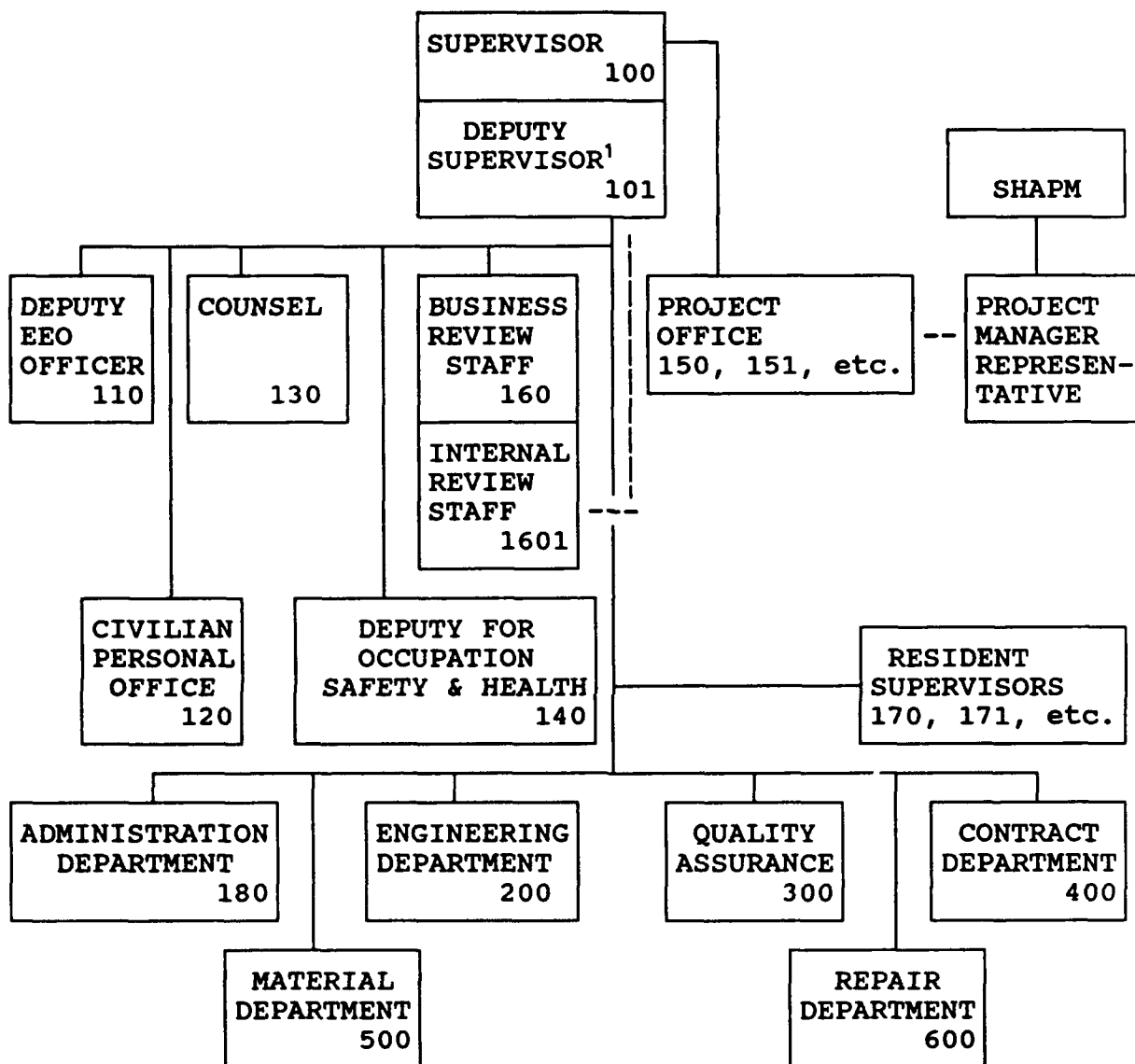


Figure 1
Standard SUPSHIP Organization
(New Construction) [Ref. 20:p. 0]

¹Where authorized.

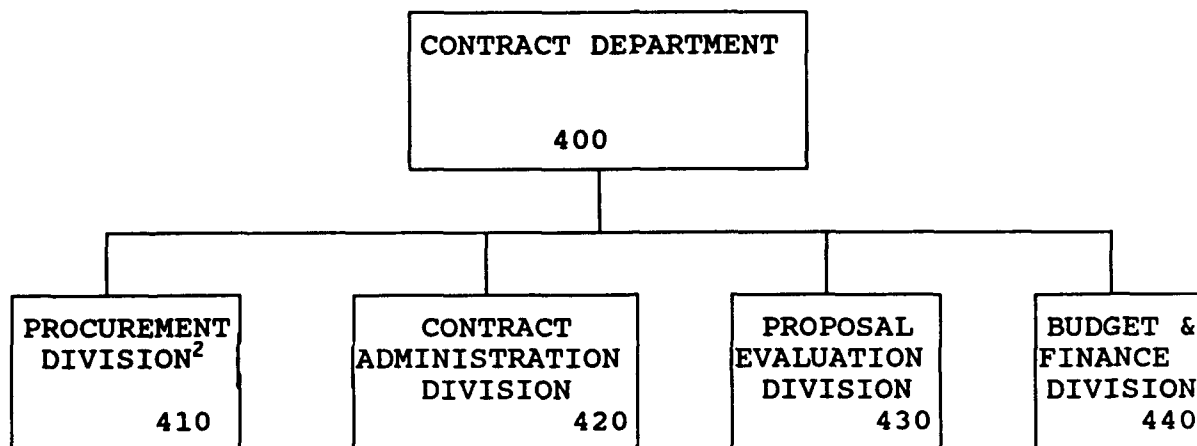


Figure 2
Contract Department [Ref. 20:p. 14]

The PCO uses subject matter experts from the operational commands as advisors and the Engineering Department for all technical aspects. They also use the ACO findings and recommendations on contractor proposals to make decisions regarding the price of the contract.

b. Contract Administration Division

After a contract or Job Order is awarded, it is assigned to the Contract Administration Division who performs the Contract Administration responsibilities. The Administrative Contracting Officer (ACO) is responsible for

²For New Construction SUPSHIPS with Repair Department (600)

the acquisition process starting at Contract Award to Contract Closeout. The USN Organization Manual lists the responsibilities of the Contract Administration Division as:

- * Administer all contractual aspects of assigned contract.
- * Process Headquarter and Field Modification Requests for new construction contracts.
- * Negotiate equitable price and other contractual adjustments resulting from changes.
- * Certify contractor invoices or vouchers for payment.
- * Adjudicate final contract settlements.
- * Maintain close coordination with the Engineering Department, the Quality Assurance Department, and the Material Department. [Ref. 20:p. 16]

c. Proposal Evaluation Division

The Proposal Evaluation Division is responsible for reviewing and evaluating a contractor's proposal to determine if the price is fair and reasonable. This division performs as an advisor to the PCO and the ACO. Their evaluations are provided to the Procurement Division and/or to the Contract Administration Division to support their negotiations. The duties of the Proposal Evaluation Division as defined in the USN Organization Manual are:

- * Review and evaluate the contractor's proposals and furnish comments to the procuring and administrative contracting officers for purposes of negotiations.
- * Prepare Technical Advisory Reports.
- * Prepare Field Pricing Reports.
- * Perform price and cost analysis and develop independent estimates as may be require for adjudication.

- * Review the contractor's work scope of proposed changes and reach a work scope understanding.
- * Determine the effect of changes in delivery schedules and the attendant disruptive effects of proposed work scope changes.
- * Develop and maintain a data bank of historical cost information. [Ref. 20:p. 17]

d. Budget and Finance Division

This division is responsible for the administration of the SUPSHIP's internal budget and accounting, and administers the financial accounting of the funds obligated in each contract assigned to the SUPSHIP.

2. Project Office

The project office is responsible for the overall coordination of the contract administration activity for each assigned contract. A project office is normally established for each new contract to be administered and is located at the contractor's work site.

3. Engineering Department

The Engineering Department provides engineering, technical and design recommendations or oversight. This technical department includes divisions for specific technical areas such as: Engineering System Management Division, Hull/Naval Architecture Division, Electrical Division, Mechanical Division, and Combat System Division.

D. THE ISRAELI MINISTRY OF DEFENSE (MOD) ORGANIZATION

The basic principle used in organizing the defense of Israel has not changed since Israel was established in 1940. It divides the mission to defend Israel between two separate organizations under the Minister of Defense (Figure 3). The first is a military organization called the Israeli Defense Force (IDF) and the second is a civilian organization called the Ministry of Defense (MOD). The IDF's mission is to protect Israel from the threat of its enemies and the MOD's mission is to support the IDF. The relevant acquisition functions and responsibilities of both organizations will be discussed in the following pages.

1. The Israeli Defense Force Functions and Responsibilities

The IDF is divided into five services which operate directly under the Chief of the General Staff. The services are: Air-Force, Ground-Force, Navy, Maintenance, and Transportation. Each service is divided into functional sections which are principally similar to each other. The Navy organization is the principal focus of this thesis and is illustrated in Figure 4. The sections within the Navy which are related to the acquisition process are:

a. Supply and Supply & Maintenance Base

The Supply & Maintenance Base segment receives, stores and maintains the weapon systems, and assures their combat readiness.

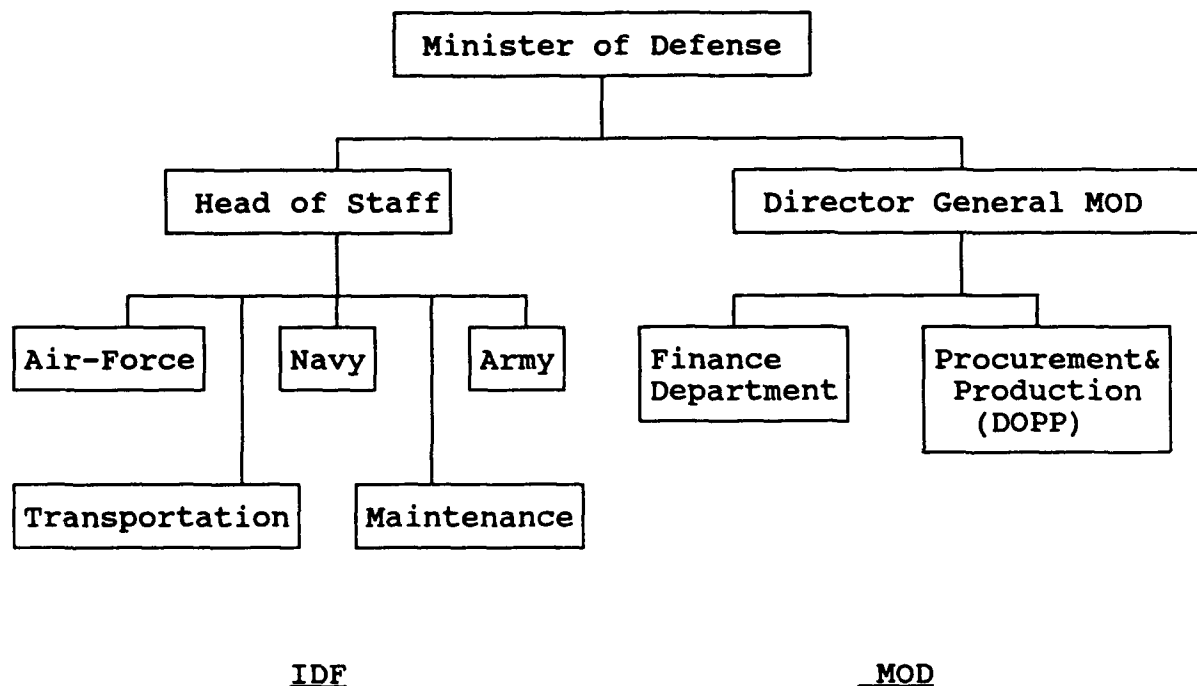


Figure 3
The Israeli Defense Organization

b. Equipment Supply

The Equipment Supply segment generates the mission needs, requirements definition, specifications development, and funding of the weapon systems and submits its requests for purchase to the MOD. The Equipment Supply segment contains functional departments divided into branches and further into sections. A section is the lowest level of the organization

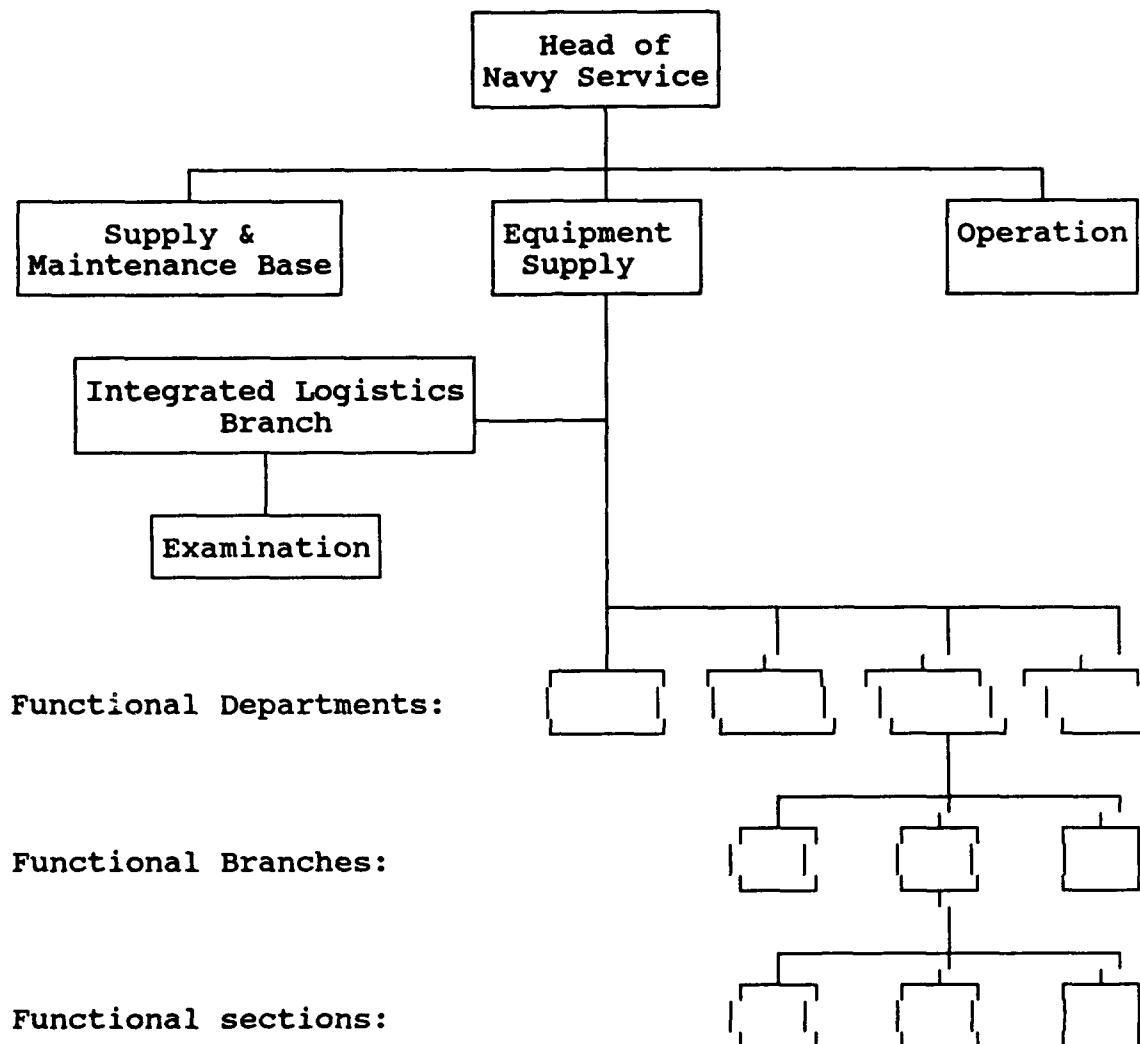


Figure 4
The Navy Organization (with respect
to acquisition process) [Ref. 21:p. 15]

and has a direct working relationship with the defense contractors. Within the sections, there is a program manager, who is involved with the contractor for all technical aspects of the development and production of a product. The program

manager serves as the technical advisor/liaison point between the IDF and the MOD representative for specific purchases.

Each service has a Test Unit. In the Navy organization, it is within the Equipment Supply segment under the head of the Integrated Logistics Branch as shown in Figure 4. This unit is responsible for the acceptance tests for all the MOD's purchases in support of a specific service.

Combat readiness, from the acquisition point of view, means being responsible for the following phases of the acquisition process: the Identification of Needs, Concept Exploration/Definition, Specification Development, Funding, and Procurement Request. The IDF is responsible for all these phases. Because the IDF has the technical capability, it is also responsible for performing the acceptance tests.

2. The Ministry Of Defense Functions and Responsibilities

The MOD has two segments actively involved in the acquisition process: The Finance Department and the Department of Procurement and Production (DOPP).

a. Finance Department

The Finance Department is a civilian organization which is under the Director General MOD who is also in charge of the DOPP. The Finance Department is responsible for all bill payments, after approval is obtained from the DOPP representative. As shown in Figure 3. The payment function is separated from the buying function.

b. Department of Procurement and Production (DOPP)

The DOPP is a matrix organization which includes a Deputy for Economics Affairs (DEA) and five divisions (Figure 5.)

(1) Deputy for Economic Affairs (DEA). The DEA office provides support in two major areas:

- (a) As advisors to the buyers. Each division and each branch of the DOPP is supported by a designated economic advisor. They provide guidance and advise on the procurement regulations. They participate in major negotiations, approve contracts before they are awarded, and are involved in solving problems during contract administration.
- (b) The DEA personnel determine labor rates for specific contractors, and approve pricing-data and contract prices.

(2) Divisions. Each division procures and administers contracts for weapon systems and is organized to support a specific service in the IDF. Thus each division will process procurement requests only for its corresponding service. There are four levels in the division organization hierarchy (Figure 6.):

- Division (DIV),
- Branch (BR),
- Section (SEC),
- Basic Unit (BU).

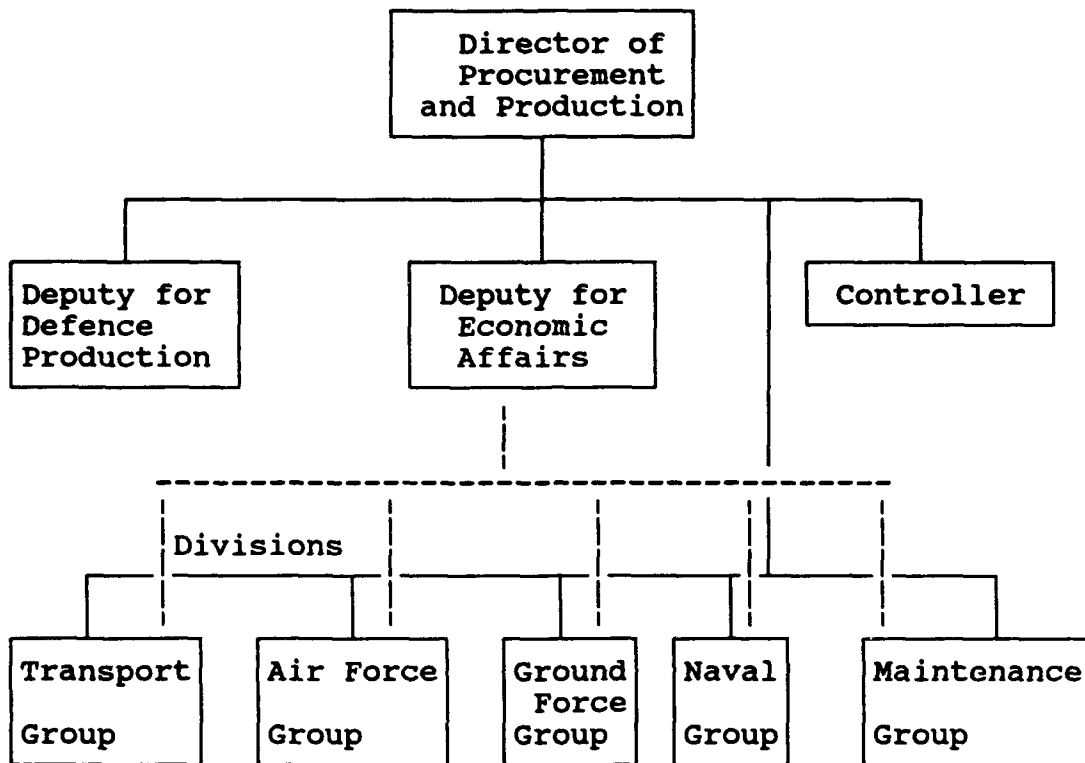


Figure 5
Directorate of Procurement and Production (DOPP)

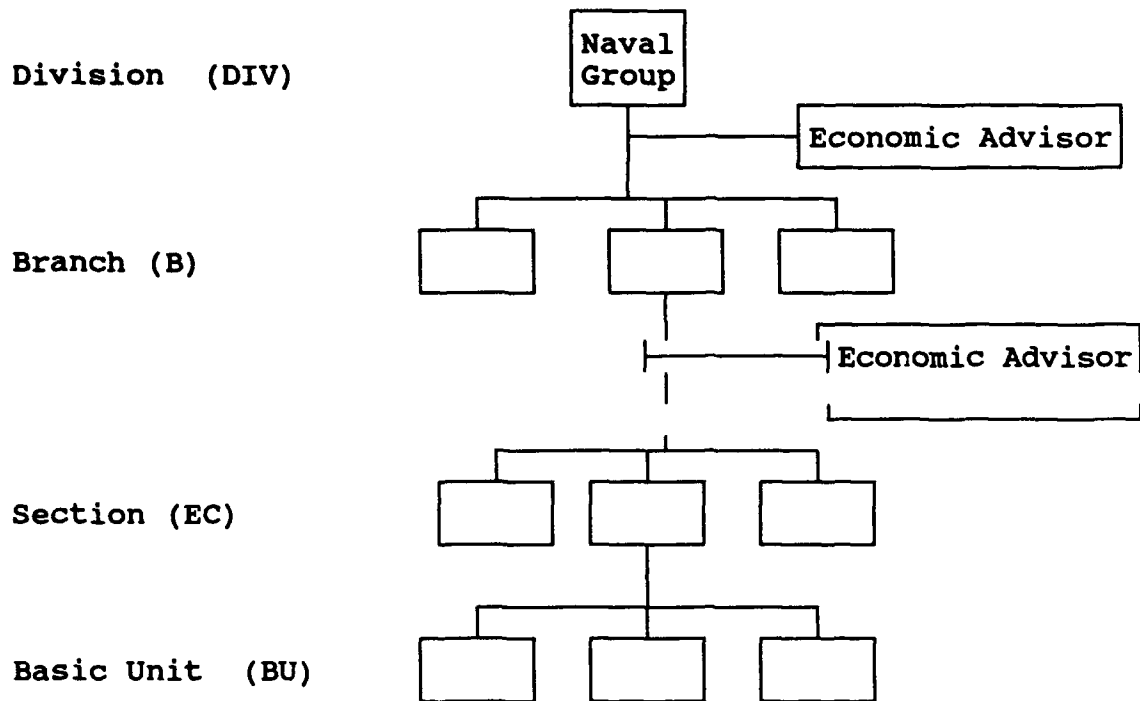


Figure 6
Naval Group Skeleton Organization

Within the acquisition process, the MOD is responsible for: Market Research, Contract Solicitation, Bid/Proposal Evaluation, Contract Negotiation, Contract Award, Contract Administration, Government Acceptance, Contract Payment and Contract Closeout.

Acceptance is the MOD's responsibility even though the IDF performs the acceptance tests. If there is a

disagreement between the Test Unit and the contractor, the MOD representative has the final decision.

E. ORGANIZING THE ISRAELI MINISTRY OF DEFENSE TO ADMINISTER AWARD FEE TYPES CONTRACTS

After comparing the SUPSHIP organization to the Israeli MOD organization, it became clear that functionally they were almost identical. If it could be assumed that the SUPSHIP organization evolved over time and is today reflective of an efficient and successful organizational structure, it would make sense to see if the Israeli MOD organization could fit into a similar structure. This structure would be one specifically set up to administer Award Fee types contracts. The following is an attempt to investigate if the Israeli MOD organization could easily mirror the SUPSHIP Award Fee administration organization.

1. SUPSHIP Award Fee Function

An example of the functional SUPSHIP personnel who usually participate on Award Fee teams are defined in SUPSHIP Seattle Instruction 4330.6A from 15 July 1986. They are:

a. Fee Determination Official (FDO)

The supervisor of Shipbuilding, Conversion, and Repair.

b. Award Fee Board

Voting members:

The Chairperson - Supervisor of Shipbuilding or Head of the Contract Department.

The Board - Head of Contract Department.

- TYCOM representative (customer).
- NAVSEA representative (customer).
- Heads of the relevant departments within the SUPSHIP.

Non-voting members:

Evaluation coordinator - designated by the Contracting Officer.

Contracting Officer Advisor.

Award Fee Liaison Officer - The intermediary between the contractor and the SUPSHIP.

Recorder

c. Award Fee Monitors

The monitors are on-site personnel who have direct knowledge of the contractor's performance. They are designated by the Contracting Officer.

2. Israeli Ministry Of Defense Award Fee Function

This section will suggest an organization for administering Award Fee types of contracts in the Israeli MOD. The recommended administrative organization is based on the organization used by a SUPSHIP and is outlined below:

a. Award Fee Determining Official

The Award Fee Determining Official (AFDO), will be the head of the DOPP or the head of the relevant Division.

The DOPP is the highest level in the MOD procurement organization and is suggested to be the AFDO in large contracts because of his overall responsibility.

The Division head responsibilities and duties are an a parallel to those of the Supervisor of Shipbuilding

because the both have the responsibility to procure and administer contracts. The Division head position is ideal for assignment as the AFDO.

b. Award Review Board

The Chairperson - DIV head or BR head

BR head or SEC head

Representative of Deputy for Economic Affairs.

Representative of the IDF Functional Branch.

(customer)

The Board should include heads of the organizations which directly benefit from the contract. This is the representative from the IDF Functional Branch. The representative of the Deputy for Economic Affairs is recommended as a member of the board because their opinion is very important to the evaluation of the ARB.

c. Award Fee Monitors

The monitors are the personnel who have the knowledge of the contractor's performance. Within the Israeli MOD these are the MOD Basic Unit personnel, an economist under the Deputy for Economic Affairs, and the IDF program manager.

F. SUMMARY

This chapter compared the structural organizations of the Israeli MOD organization and the U.S. Navy's Supervisor of Shipbuilding, Conversion and Repair organization. As a result of this comparison, it was determined that the differences between these two organizations were insignificant and the

administration of Award Fee types of contracts can be implement with basically no change in the Israeli MOD organization.

The next chapter will identify and discuss the barriers that need to be overcome when implementing the use of Award Fee types of contracts in the Israeli MOD.

V. BARRIERS TO IMPLEMENTATION BY THE ISRAELI MINISTRY OF DEFENSE

In order to make an informed decision whether to implement the Award Fee types of contracts in the Israeli Ministry of Defense (MOD), the Israeli Government should take into consideration the potential barriers to its successful implementation. In an effort to identify these barriers, the researcher accomplished the following:

- * conducted an extensive literature review on the subject of Award Fee types of contracts and their use in the United States in an effort to identify any written discussions on implementation barriers.
- * conducted numerous telephone interviews with Procuring Contracting Officers and Administrative Contracting Officers primarily in the U.S. Navy to obtain an understanding of the Award Fee types of contracts and to solicit their views on potential implementation barriers.
- * sent a questionnaire to the Economists and Section Heads in the Israeli DOPP in an effort to obtain the views from personnel who would be using this type of contract.

A. RESPONSES TO THE QUESTIONNAIRE

A questionnaire was sent to the Economists and Section Heads in the Israeli DOPP. This questionnaire (Appendix B), outlined the Award Fee types of contracts and requested their thoughts, ideas, impressions, doubts and reservations with regards to implementing the Award Fee types of contracts.

The questionnaire was sent to personnel who occupy the levels within the Department of Procurement and Production (DOPP) who are involved with the daily business. These

officials are very knowledgeable and familiar with the problems associated with using the existing contracts types and therefore are perfectly suited to answer the questionnaire. The DOPP is very small in size and therefore the responses received were in many ways a summary of all their opinions.

The twelve responses received were written in Hebrew and ranged from acceptance of the Award Fee types of contracts to total rejection. The discussion below is an English translation of the responses. The responses discuss various barriers that must be overcome. The researcher's analysis of the barriers is also included in the discussion.

1. Administration burden

The vast majority of the responses were concerned with the increased administrative burden that this type of contract requires. They felt that they did not have the manpower to effectively utilize this types of contracts. This lack of manpower can be divided into two categories:

- * number of people
- * number of technically trained people

The need for professional and skilled personnel who would serve as Award Fee monitors is critical for the success of this type of contract and therefore is a valid concern. The existing Israeli organization separates its functions between the MOD and the IDF. It would take a joint effort by both IDF

and MOD professional personnel to satisfy the need for qualified award fee monitors.

The significant administrative burden associated with the Award Fee types of contracts is also identified as a barrier in the literature. That is why it is imperative that a cost/benefit analysis is conducted before this type of contract is selected. There will be times when the benefits derived from increased contractor attention to the areas to be evaluated, will greatly outweigh the additional administrative costs. Only then should this type of contract be used.

2. Lack of adequate Funding

A majority of the responses centered on the funding issue. They felt that they couldn't use these types of contracts because funding would not be available for the award fee portion.

This concern was based on the procurement funding procedures being followed in Israel. The IDF sends a procurement request to the MOD for purchasing with estimated funds already committed. This funding is provided before the decision on the type of contract to be used. If additional funds are required, the MOD must request the funding from the IDF. This is perceived to be a barrier because it is believed that the IDF will not provide any additional funding if the reason is solely because of the use of a different contract type.

The U.S. literature did not discuss funding as a barrier because if it was determined that the Award Fee contract is the most beneficial type of contract to use, U.S. requiring activities were willing to provide the additional funding. Secondly, it should not be assumed that the Award Fee type of contract would cost more than any other type of contract. If a Cost Type contract is envisioned, the fee portion could easily be restructured and used in the award fee format with a smaller fixed fee and a portion for the award fee. If a Firm Fixed-Price type of contract is envisioned, the award fee portion is figured into the profit analysis and negotiated accordingly.

3. Difficulties in Defining the Evaluation criteria

Three of the respondents felt that the ability of the IDF personnel to develop good award fee evaluation criteria was a barrier.

The award fee evaluation criteria are the cornerstone of the Award Fee types of contracts and therefore this is a valid barrier. U.S. literature identifies the need for very clear and meaningful criteria as one of the most important factors when considering the use of Award Fee types of contracts. A U.S. Army Handbook entitled the "Handbook for CPAF contracts" provided the following list of questions that should be answered before selecting the evaluation criteria to be used:

- Is the element meaningful and important to overall performance objectives?

- Is the element consistent with other elements in the plan?
- Is the element sending the contractor the right message about contract performance?
- Is it described discretely so that there will be no unnecessary duplication in the evaluation process? [Ref. 22:p. 10]

It is true that the Israeli MOD should be concerned with the ability of the IDF to properly write and select the evaluation criteria, but it is believed that this barrier can be overcome through training and acquisition planning.

4. Bias in evaluation process

Two of the respondents felt that the Award Fee types of contracts could foster a biased behavior from the award fee monitors. This behavior could be either for or against the contractor. This could either destroy the relationship with the contractor or destroy the integrity of the award fee process.

There is no doubt that when a person has some power to affect the profitability of another, it presents potential pressures for biased behavior and therefore this is a valid concern. Whether or not this is a barrier is a question that is worth discussing. The potential for biased behavior is always present in the field of contract administration and the Israeli Government has taken many steps to ensure that this type of behavior is not present. There are many checks and balances built into the contracting system and this is the case for this type of contract.

In the U.S. literature, the Army Handbook for CPAF Contracts emphasizes that:

It is extremely important that the established award fee determination system . . . contain appropriate checks and balances for maintaining its impartiality. [Ref. 23:p. 24]

There are four tools in the administration of Award Fee types of contracts that could be used to eliminate potential bias in the evaluation process. These four tools are:

- a. The Award Fee Review Board evaluates the contractor performance based on the performance monitoring. The ARB members are people that are not involved in the day-to-day work with the contractor. However, they are close enough to the work to be able to evaluate the performance monitoring records. The U.S. Air Force's Base-Level Guide states the purpose of the ARB as:

. . . to operate under the principles of fairness and justice to the Government and the contractor. In order to accomplish their purpose, each PEB (ARB) member must listen carefully to each individual who briefs the board and read for understanding all documents submitted . . . they are not bound to automatically "rubber stamp" the recommendation presented by any of the briefers. [Ref. 6: p. 53]

- b. The last decision on the amount of the fee awarded is done by the Award Fee Determination Official who is a high level official with a wide view of the situation and who will not be biased by the day-to-day incidents. The U.S. Air Force's Base-Level Award Fee Guide expressed the position of the AFDO as:

The AFDO should be the senior ranking commander on base . . . This allows the Air Force to have an individual who has a direct interest in the quality of the service, but is far enough removed from observing daily performance, to allow for a fair fee determination based on the recommendation of the ARB.

The AFDO ideally maintains a natural relationship during each performance evaluation period with regard to having any responsibility to observe contractor performance, or

receive any intermediate performance report. [Ref. 6:pp. 56, 57]

- c. A contractor representative can sit in the ARB. This person has the ability to ask the Award Fee monitors for clarification of their determinations. This helps eliminate any bias in the reports. The U.S. Navy's SUPSHIP Seattle Instruction 4330.6a stated that:

The contractor may be invited, and open discussion on performance matters may be held The contractor may submit written responses to the reports to which the Award Fee Monitor may reply, if applicable. [Ref. 22:p. 6]

- d. The contractor, in the written responses, can also present a performance report to the ARB. The report will provide the contractor's assessment of the grades they earned as evaluated by his personnel. Differences between the contractor's report and the performance monitoring reports help the ARB to find and eliminate bias in the performance monitoring reports.

The potential for any bias in the evaluation process is always present, but the checks and balances built into the award fee process are more than adequate to counteract that potential.

5. Limited use for the Award Fee types of contracts

Two respondents felt that there was only limited application for these types of contracts.

They felt that the Award Fee types of contract can be used only in sole source negotiations and not in competitive situations. This is because the payment of the award fee pool depends on the evaluation of the contractor performance and is different for each contractor. They felt that because the evaluation criteria are known, each contractor can estimate the potential payments from the award fee pool. That means

that the total amount of money to be made by one contractor may be different from the amount another can make.

This concern is not valid as an impediment. The Award Fee types of contracts can be used in both sole source and competitive situations. In competitive situations, the award fee portion can either be left out of the evaluation for award since it could be made the same for all offerors or it could be submitted as a competitive element for consideration of the award. The U.S. Department of Defense normally uses the competitive negotiation method when soliciting requirements that will be administered under an Award Fee type of contract.

B. OTHER BARRIERS

The barriers discussed above were specific to the Questionnaire sent to the Economists and Section Heads within the Israeli DOPP. The following are two additional barriers that should be considered when implementing the Award Fee types of contracts into the Israeli MOD regulations:

1. Size of the Award Fee Pool

The size of the Award Fee Pool was not raised as a concern by the respondents to the survey but if an inadequate amount of money is put into the award fee pool, it will not provide an adequate amount of incentive to the contractor to stimulate his best efforts. This is a definite barrier because there must be a commitment to adequately fund the award fee pool. It should be large enough to motivate the contractor, but not too large to cause the contractor to

concentrate more on the award fee criteria instead of the contract requirements.

2. Attitude of the people

The attitude of the people charged with the implementation of any change is very important to its success. Often people are uncomfortable when changes occur and their resistance to that change effectively guarantees its failure. The Award Fee type of contract can provide the contracting officer with a type of contract that properly motivates a contractor where other contract types fail. It should be considered and at a minimum, tested in Israel. It has been a successful type of contract in the United States. The benefits that this type of contract could bring to Israel should be strongly considered and its implementation positively motivated from the highest levels.

C. SUMMARY

This chapter discussed the possible barriers to the implementation of the Award Fee types of contracts in the Israeli MOD regulations. The first section dealt with barriers expressed as concerns by personnel within the Israeli MOD organization. The second section discussed additional barriers discovered in the literature. These barriers must be taken into consideration when considering the use of these types of contracts but they can be overcome by the Israeli

Government. The next chapter is a short guide that can be followed when implementing the Award Fee types of contracts in the Israeli MOD.

VI. IMPLEMENTING THE AWARD FEE TYPES OF CONTRACTS IN THE ISRAELI MOD

A. INTRODUCTION

Various types of contracts are available to the MOD buyers. Each buyer must have a clear understanding of all types of contracts available for use in order to have the maximum flexibility needed to support the IDF's mission requirements. Adding the Award Fee types of contracts to the types already in existence in the MOD regulations would greatly enhance the available options to the buyers.

The purpose of this chapter is to serve as a guide for use in implementing the Award Fee types of contracts into the Israeli MOD regulation.

B. AWARD FEE CONTRACTS

The Award Fee types of contracts are incentive types of contracts, which motivate a contractor to improve performance in specific categories beyond the minimum requirements outlined in the contract. These categories are selected by the Government for special emphasis by the contractor. There is a separate pool of money that is designated for award to the contractor for evaluated performance in these specified categories. Based on a subjective evaluation process, the Government can withhold a portion of the award fee due to less than excellent performance.

The Award Fee contracts are different from other incentive contracts in the flexibility they provide the Government in managing the contract and the feedback mechanism which improves the communications between the Government and the contractor.

Every Award Fee type of contract (FPAF and CPAF) can be divided into two sections:

Basic contract - In CPAF type contracts, the basic contract is a Cost type, which includes the estimated cost and the Based Fee. In FPAF type contracts, the basic contract is a Fixed Price type contract.

Award Fee - The portion of the Award Fee pool.

1. Fixed Price Award Fee (FPAF)

a. The concept of the FPAF

The FPAF contract is essentially a FFP contract with the exception of the additional pool of money. This money is used to motivate contractors to improve the quality of performance, allowing the Government to more closely monitor a contractor's performance (technical, management).

The United States Air Force Base-Level Award Fee Guide summarizes the differences between FFP and FPAF as follows:

<u>FFP promotes:</u>		<u>FPAF promotes:</u>	
Motivation by Contractors to Cut Costs.	vs	Motivation by Contractors to Satisfy Customer	
Low local Command Involvement	vs	High Level Command Involvement	
Interpreting the Letter of the Contract	vs	Interpreting the Spirit Of the Contract	

Figure 1
Differences between FFP and FPAF contracts
[Ref. 6:p. 3]

b. Use of FPAF

The FPAF type of contract can be used when the following conditions exist:

(1) Conditions for Fixed Price:

- (a) The price can be justified as fair and reasonable.
- (b) There are reasonably definite design or performance specifications.
- (c) Uncertified performance can be identified and reasonably estimated as cost variants.
- (d) There is an adequately competitive market.

(2) Conditions for FPAF:

- (a) There is a need for the flexibility that is not achievable in a Fixed Price contract.
- (b) There is a history of performance problems.
- (c) The contract is of high value and the additional administrative effort and cost required to monitor and

evaluate performance would be justified by the expected benefits.

2. Cost Plus Award Fee (CPAF)

a. The concept of the CPAF

The CPAF type of contract is a typical Cost type contract with a special fee provision. The fee in a CPAF contract consists of two parts:

(1) Base Fee:

A fixed fee that does not vary with performance or costs. The Base Fee can be zero in a CPAF contract. This fee is designed to compensate the contractor for factors such as risk assumption, investment and the nature of the work.

(2) Award Fee pool:

An additional pool of money used to motivate the contractor to improve the quality of performance and allow the Government personnel to more closely monitor a contractor's performance (technical, management). This fee is earned by the contractor for performance that demonstrates quality effort toward accomplishing the tasks and functions cited in the contract.

b. Use of CPAF

The CPAF type of contract can be used when the following sets of conditions exist:

(1) Conditions for Cost Reimbursement:

- (a) The use of any type of Fixed Price is not appropriate.**
- (b) Level of effort is required.**
- (c) High technical and cost uncertainty exists.**
- (d) Performance requirements are difficult to define.**
- (e) There is no way to estimate the cost.**

(2) Conditions for Award Fee:

- (a) The contractor's performance involves multiple tasks or functions within a broad scope of the work.
- (b) There is a need for flexibility in managing the contract. This is the ability to change the performance emphasis during the contract executing phase.
- (c) Other types of incentive contracts are not suitable for the task.
- (d) The Government believes that involvement of its top management officials in the contractor's evaluation would be beneficial.
- (e) The additional administrative effort and cost required to monitor and evaluate performance would be justified by the expected benefits.

C. PLANNING

Contract planning should begin in the early stages of the procurement cycle, as soon as the Procurement Request is received in the MOD, and the head of the Basic Unit decides to use the Award Fee type of contract for the specific purchase. This planning is particularly important in Award Fee contracts because of the special administrative requirements. This early planning should include:

1. Development of a comprehensive Award Fee Plan (AFP) which includes the criteria and the organizational structure needed for assessing and evaluating contractor performance and determining the Award Fee earned by the contractor.
2. Development of the Request For Proposal (RFP) which identifies the Award Fee features and explains how they should be addressed in the submitted offers.
3. Development of the proposed contract clauses that specify the Award Fee feature.

4. Request for additional funds, if needed for the Award Fee pool.

The discussion on (2) RFP and (3) proposed contract clauses will be contained in the discussion on the specific phase of the process.

1. **The Award Fee Plan (AFP)**

The purpose of the AFP as defined in the Army Handbook for CPAF contracts is:

. . . to articulate in one document the plan and means for assessing and evaluating contractor performance for determining the award fee to be awarded. The plan also serves as a charter for the organizational structure required to administer the award fee provision of a contract. [Ref. 23:p. 5]

The development of an AFP must be a team effort by MOD and IDF personnel. It is very important that these team members be identified as early as possible to assign their respective responsibilities for development of the plan.

If the team discovers that allocated funds are not sufficient for the Award Fee contract, they should delay the RFP until receiving the required funding.

The AFP should be practical and simple. It should address exactly what performance the Government considers to be important and the evaluation criteria by which the performance level will be measured. The plan should strive for the most efficient amount of effort to administer the contract.

The AFP will specify:

1. The functional area to be evaluated.
2. The criteria to be used in the evaluation. The criteria should be carefully designed to be very clear, and separate from the contract specifications.
3. Weighted formula to calculate the amount of the award fee.
4. The method to measure the contractor's performance against these criteria and the formula to calculate the performance grade.
5. The amount of money contained in the Award Fee Pool and the Base Fee (in case of CPAF). The total fee should be limited in the regulation as a percentage of the estimated costs. This is to ensure that the Award Fee pool will be sufficient to motivate the contractor but not too large to cause the contractor to concentrate more on the award fee criteria instead of the contract requirements.
6. A list of the members in the Award Review Board (ARB) and the Award Fee Determination Official (AFDO).

Appendix A contains an example of an Award Fee contract. The contract includes all the elements of the Award Fee plan.

D. SOLICITATION

The solicitation is issued for both sealed bid and negotiation. In both cases, the solicitation should include in addition to the technical specifications and the terms and conditions of the basic contract, all the necessary information regarding the Award Fee provisions such as:

1. Explanation of the Award Fee Concept.
2. The functional areas to be evaluated.
3. The criteria and weighted formula to calculate the amount of the award fee.

4. The method to measure the performance and the technique to grade it.
5. Evaluation period.
6. The amount of money designated to the Award Fee Pool for each evaluation period, and in case of the CPAF, it should also include the Base fee.
7. Method of rollover, if desired.

Because all of the information described here is included in the Award Fee Provision, an illustration of this information can be found in Appendix A.

E. SOURCE SELECTION

The decision on which prospective contractor to award the contract depends on the technical and cost proposals evaluation. The use of the Award Fee concept does not change the method used in source selection. This is because the Award Fee is separate from the basic contract and will be the same for all contractors. The Award Fee amount which the contractor can earn depends on the evaluation of the contractor's performance against the specific criteria and not on the cost or the technical specifications of the contract. This assures that even under the sealed bid method, the conditions for competition still exist.

F. CONTRACT ADMINISTRATION

The administration of Award Fee types of contracts plays a very important role towards achieving the objectives of this type of contract. It must be efficient in order to compensate for the additional effort required by this type of contract.

The administration of the Award Fee types of contracts should be organized on three basic levels:

- Performance monitoring;
- Award Review Board (ARB);
- Award Fee Determination Official (AFDO).

1. Performance monitoring

The day-to-day monitoring of the contractor's technical performance is carried out by the I.D.F PM and his staff. The day-to-day monitoring of all other aspects of the contract is carried out by the head of the Basic unit (BU) and his staff, an economist under the Deputy for Economic Affairs, and the IDF program manager. These people should be familiar with the contract's AFP in order to monitor the contractor's performance for the Award Fee evaluation. They must also document and report their observations of the contractor's performance. They evaluate the performance according to the Award Fee Plan criteria and present it to the ARB.

2. Award Review Board (ARB)

The contractor's performance evaluation for each period will be reviewed by the Award Review Board (ARB) consisting of:

- a. The Chairperson (The first signer on the contract - Division head or Branch head)
- b. Section head
- c. Representative of Deputy for Economic Affairs
- d. Representative of the IDF Functional Branch
- e. Contractor representative (non-voting).

At the end of each evaluation period the ARB will prepare a recommendation on the amount of Award Fee to be paid to the contractor. This recommendation is given to the AFDO for his final decision. It is based on the board member's experience, the reports they receive from the performance monitors, and the calculation of the score according to the formula in the contract.

They also recommend to the AFDO necessary changes in the weighted factors based on the contractor's performance in the last evaluation period.

The contractor has the opportunity to be represented in the ARB evaluation even though he has no voting rights on the board. The contractor representative can ask the Performance Monitoring personnel clarifying questions about their reports and express the contractor point of view on the reports. The contractor also provides his own evaluation of his performance to the ARB. This enhances the line of communication between the Government and the contractor.

3. Award Fee Determining Official (AFDO)

The Award Fee Determining Official (AFDO) should be the head of the Department of Procurement and Production or

the head of the Division (the second signer on the contract). He is responsible for determining the award fee to be paid to the contractor, based upon the performance evaluation conducted by the ARB. He also approves any changes in the Award Fee Plan and provides the contractor with the appropriate feedback on their strengths and weaknesses exhibited during the evaluation period.

The AFDO's decision on the amount of award fee to be paid and on the changes in the weighted factors are not subject to the disputes provisions of the contract.

G. PAYMENT OF THE AWARD FEE

The payment of the award fee will be made under separate arrangement from the regular payments in the contract.

The contractor will be informed immediately after the AFDO's decision on the amount of the award fee to be paid. The Award Fee payment should be made within 7 working days of receiving the contractor's invoice.

H. CHANGES

1. Change in the Basic Contract

Any change in the total amount of the basic contract should take into consideration whether an appropriate change should be made to the Award Fee pool.

2. Change in the Award Fee Provision

Changes in the performance factors and criteria, and their weights, should be relayed to the contractor before the

beginning of a new evaluation period. This will cause the contractor to emphasize the areas which the Government found needed improvement and reflected by the change in the Performance factors Weight Range.

I. SUMMARY

The objective of this chapter was to provide a useful guide that could be used by Israeli MOD personnel when implementing the Award Fee types of contracts. The example in Appendix A is to be used in conjunction with the information in this chapter. The next chapter will provide the conclusions reached during this research and recommendations for consideration. Finally, the research questions will be answered in summary manner.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

1. Use of Award Fee Types of Contracts could benefit the Israeli Ministry of Defense

Award Fee types of contracts, FPAF and CPAF, provide a profit incentive to contractors for increased efforts in areas of performance which are not subject to objective measures but are considered to be important to the successful completion of the contract. These types of contracts can motivate a contractor's performance in areas not possible with the current types of contracts available to the Ministry of Defense. It would be in the best interest of the Israeli Government to provide the Ministry of Defense with this additional contractual tool when considering the appropriate contract type to meet the requirements of the IDF. These types of contracts are used successfully in the United States of America.

2. Award Fee Types of Contracts Motivate Contractors

Award Fee types of contracts have been used in the United States Federal Government for approximately thirty years. Research performed to evaluate the effectiveness of these contract types indicates that these contracts truly motivate contractors. Raymond G. Hunt interviewed contractors and found that:

Some observers believe contractors are "oriented to being responsive in any case", but award fee provisions nonetheless appear to enhance it. [Ref. 9:p. 84]

A summary of interview findings reflect this conclusion:

- a. Contractor Program Managers said that Award Fee contracts attract a lot of "interest" from elsewhere in the corporation.
 - b. The Award Fee type of contract creates a high rate of formal and informal communication, both inside the organization and between the contractor and the Government.
 - c. Feedback to contractors on performance is essentially continuous as a result of the "good dialogue" created by the Award Fee concept.
 - d. Award Fee helps programs by encouraging quality work.
- 3. Award Fee Types of Contracts can be used in competitive as well as sole source methods.**

The use of these types of contracts is not limited to Sole Source negotiation. It is easily used in competitive procedures if the solicitation includes a clause detailing the award fee provisions and procedures to be followed in evaluating the award fee. The United States of America commonly awards contracts with award fee provisions after using the competitive negotiation method.

- 4. The organizational structure of the Israeli Ministry of Defense is not a barrier to the use of the Award Fee Types of Contracts.**

The organizational structure of the United States Navy's Supervisor of Shipbuilding, Conversion and Repair was used as a sample because of its many similarities to the Israeli Ministry of Defense. It was determined by this

researcher that the Israeli MOD structure could easily mirror the successful SUPSHIP structure that is used in the administration of Award Fee types of contracts. The researcher's recommended Israeli MOD structure for the administration of Award Fee Types of Contracts can be easily accomplished and can effectively administer these types of contracts.

5. **There are no barriers to the implementation of Award Fee Types of Contracts that cannot be overcome.**

The barriers to implementation by the Israeli Ministry of Defense were discussed in Chapter V. These barriers were identified through a survey sent to the Economists and Section Heads in the Israeli DOPP and through the research of U.S. literature on Award Fee type contracts. It was the conclusion of this researcher that none of the barriers could not be overcome. It would require some training, education, and most importantly, the support of the top management within the Israeli Ministry of Defense.

B. RECOMMENDATIONS

1. **The Award Fee Types of Contracts should be incorporated into the Israeli Ministry of Defense procurement regulations.**

The potential benefits far outweigh any disadvantages that may arise from adoption of the Award Fee types of contracts. These types of contracts should be used only when the benefits to be attained are greater than the cost of administering the contracts. The addition of these types of

contracts increases the choices of contractual managements available to contracting officers. This greater flexibility improves the contracting process and support being provided by the Ministry of Defense.

2. When implementing the use of Award Fee Types of Contracts, the Israeli Ministry of Defense should take into consideration the barriers discussed in Chapter V of this thesis.

When any change to standard procedures is contemplated, the concerns of the personnel charged with its implementation must be considered and overcome in order to assure success. The barriers to successful implementation of the Award Fee types of contracts were discussed in Chapter V. It was concluded by this researcher that all of the barriers could be overcome and that the benefits to the Israeli Government far outweigh any disadvantage .

3. The Israeli Ministry of Defense should consider conducting a test before incorporating the Award Fee Types of Contracts into the Ministry of Defense regulations.

It is always a prudent practice to test a new idea or concept before making it available for general use. In this case, the evidence is overwhelming in favor of implementation by the Israeli Ministry of Defense. But, even though it is a successful type of contract in use in the United States, it may not work in Israel. An appropriate requirement should be chosen, the award fee contract provisions written and understood, the award fee contract administration team trained, and

1. Primary Research Question

The primary question in this thesis is: "Should the Award Fee types of contracts be used in satisfying the requirements for the Israeli Ministry of Defense?"

The Award Fee types of contracts (CPAF and FPAF) should be added to the existing types of contracts in the Israeli MOD regulations. As mentioned in conclusion number one, these types of contracts provide a profit incentive to contractors for increased efforts in areas of performance which are not subject to objective measures but are considered to be important to the successful completion of the contract. It would be in the best interest of the Israeli Government to provide the Ministry of Defense with this additional contract type since it motivates contractors in areas not possible with the other types of contracts available in the MOD regulations.

2. Subsidiary Research Questions

- a. What are the advantages and disadvantages associated with the use of Award Fee types of contracts?**

Chapter III discussed in detail the advantages and disadvantages associated with the use of the Award Fee types of contracts. The primary advantages are:

- (1) The Award Fee types of contracts motivate contractors to perform in objective management areas selected by the Government. This motivation is not possible when other types of contracts are used.
- (2) Award Fee types of contracts enhance communications between the Government and the contractor. This helps improve the contractor's performance and product quality.

- (3) The Award Fee types of contracts provide the Government with the flexibility to change the emphasis in the evaluation criteria after each evaluation period. This ability to essentially redirect the contractor's focus at no additional cost is unique to award fee contracts and is very effective.

The disadvantages associated with the use of Award Fee types of contracts are:

- (1) The costs of administering Award Fee types of contracts is high.
- (2) Award Fee types of contracts are more complicated to administer than other types of contracts.

b. What are the differences between the acquisition organization of the Department of Defense, as characterized by the Navy organization and the Israeli Ministry of Defense, with respect to administration of Award Fee contracts?

The structural organization of a U.S. Navy Supervisor of Shipbuilding, Conversion, and Repair (SUPSHIP) was discussed and used as a sample for the Israeli Ministry of Defense's (MOD) structural organization. The SUPSHIP was used because of its similarity with the Israeli Ministry of Defense. It was concluded in Chapter IV that the Israeli MOD structure could easily mirror the successful SUPSHIP structure that is used in the administration of Award Fee types of contracts. There are no significant differences between the organizations that would prevent the use of Award Fee types of contracts.

c. What is the best method to implement Award Fee contracts in the Ministry of Defense?

It is recommended that the following procedure be followed when implementing Award Fee contracts in the Ministry

of Defense. (1) Choose an appropriate requirement to test the Award Fee contract upon, (2) train all personnel involved with its award and administration, (3) use the guide developed in Chapter VI to develop the solicitation and award fee provisions, (4) award and administer the contract, and (5) evaluate its effectiveness.

d. Under which conditions will it be better to use Fixed Price Award Fee type contracts versus Cost Plus Award Fee type contracts?

The award fee provisions and award fee monitoring procedures are the same for each type of contract. Therefore, the decision whether to use Fixed Price Award Fee versus the Cost Plus Award Fee type contract is dependent on the completeness of the contract specifications and the cost risk the contractor is willing to accept. In either case, the award fee feature will motivate the contractor's performance in the areas identified by the award fee criteria.

APPENDIX A

AN EXAMPLE AWARD-FEE CONTRACT

A. INTRODUCTION

This is an example of a Fixed Price Award Fee (FPAF) contract for the maintenance of electronic equipment.

There are two kinds of maintenance contracts:

1. Fixed Price

Normally the Fixed Price of the maintenance contract is estimated from the value of all the equipment to be maintained. Typically a figure from 6%-10% is used. Once the contract is awarded, it is paid in equal monthly installments.

The contractor is obligated to perform preventive maintenance and to repair the equipment when needed under contract terms. The contractor can request an equitable adjustment for repairing damages which are the result of misuse by Government personnel.

The main advantages of the Fixed Priced type contract are:

- a. The amount of the Government's financial obligation is clear. The contractor bears the risk for all costs incurred to fulfill the requirements of the contract.
- b. If the contractor is efficient and can reduce costs he can earn a higher profit from the contract.

The disadvantages are:

- a. It is very difficult to select a reasonable contract price, especially when there are different types of

equipment under the same contract, and some pieces are older than others;

- b. It is difficult for the Government to obtain information about the cost of maintenance for use in future contracts. Usually the contractor's accounting system is not sufficiently detailed to provide information for pricing future contracts.

2. Time and Materials

In this type of contract, the contractor is reimbursed for all his costs. In most contracts, the invoices do not distinguish between emergency maintenance and preventive maintenance.

An advantage of a Time and Materials contract is the ability to obtain information about specific maintenance costs from invoices. These details can be required before approval of payment.

Disadvantages are the risk of increased costs to fulfill contract requirements and the lack of incentive for the contractor to reduce cost. Reducing costs would reduce the amount the contractor receives on this current contract and also affect the price for future contracts.

To combine the stated advantages of the Fixed Price contract and the Time and Materials contract, the FPAF can be used. This combination eliminates cost risk to the Government and provides the ability to collect information for future contracts. The Award Fee must be large enough to motivate the contractor to meet the objectives of the Government. The award fee should not exceed the benefit derived from it.

B. THE CONTRACT

This contract is for maintenance of x:xx from 01/01/19XX to 12/31/19XX.

Type of contract: Fixed Price Award Fee.

The total contract price is: \$\$\$

The contract price is composed of:

aaa \$: Is the base contract to be paid in monthly payments of aaa/12 a month.

bbb \$: To be paid according to the Award Fee provision.

The base contract includes preventive and emergency maintenance, as specified in Appendix B - Specifications.

1. Award Fee Provision

This provision describes the amount of the Award Fee portion of the contract and the contractual terms for earning the Award Fee.

The Award Fee will be given to the contractor, based on the evaluation of the contractor's performance as defined below.

a. Evaluation Period

The Performance Fee Board will evaluate the contractor's performance during the evaluation period.

The Evaluation Period	Begin	End	Performance Fee Pool Available
First period	award	3 MA	25%
Second period	3 MA	6 MA	25%
Third period	6 MA	9 MA	25%
Fourth period	9 MA	12 MA	25%

Note: "MA" means month after the award date; the specific date of the month will be considered to be the last day of the month.

The performance fee will be made available to the contractor after approval in accordance with paragraph (d) - Performance Fee Determination and Reclama Procedures. The Head of DIV, at his discretion, may decide to change the weights of the criteria through use of a unilateral modification of the contract. He also may decide to rollover any amount that has not been approved in any of the evaluation periods previous to the fourth period.

b. Award Review Board

The contractor's performance evaluation for each period will be conducted by the Award Review Board (ARB). This board contains no more than four members; they are:

- (1) The Chairperson (Branch Head)
- (2) The Section Head
- (3) A Representative of Deputy for Economic Affairs (to be determined)
- (4) A Representative of the IDF Functional Branch (to be determined)

c. Award Fee Determining Official

The Award Fee Determining Official (AFDO), will be the DIV's head. He shall make determinations of the award fee to the contractor based upon the performance evaluation conducted by the Award Review Board, established pursuant to paragraph (b) above.

**d. Performance Fee Determination and Reclama
Procedures**

- (1) Within twenty (20) working days after the end of each evaluation period under the contract, the contractor shall furnish to the ARB such information as may be required to help the ARB evaluate the contractor performance during that evaluation period.
- (2) Within five (5) working days after the Award Fee Board meeting, the ARB shall prepare the performance evaluation letter and present it to the Award Fee Determining Official. A copy will be provided to the contractor upon approval of the AFDO.
- (3) Within five (5) working days after receipt of the copy of the performance evaluation, the contractor may submit to the AFDO any comments with respect thereto. In support of his comments, the contractor may furnish a written description of his performance during the period under consideration. This description shall clearly identify specific evaluation factors, criteria, and the contractor's own rating of it.
- (4) Within six (6) working days after receipt of the contractor's comments, the AFDO shall provide the BU's head with a final performance evaluation and determination of the award fee.
- (5) Within two (2) working days after receipt of the final determination, the BU's head shall notify the contractor in writing of that final determination.
- (6) The contractor shall submit an invoice on the amount determined. The award fee payment will be made within seven (7) working days after receiving the contractor's invoice.

e. Finality of AFDO's determination

The determination by the AFDO of the amount of the award fee and the weight of the performance factors is final and shall not be subject to dispute.

f. Performance Factors and Weights

The contractor's performance during each evaluation period will be judged according to four factors:

<u>Performance Factor</u>	<u>Weight Range Percent</u>
1) Quality of Service	25%
2) Timeliness	25%
3) Management Performance	25%
4) Documentation	25%

The total weight of the performance factors in any evaluation period will equal 100%.

The Government may, at its discretion, unilaterally make changes in the performance factors and criteria as well as adjustments to the weight of these factors. Changes must be completed before commencement of the next evaluation period and the contractor must be apprised of these changes. Unsatisfactory performance under a performance fee criterion may result in an increased weight for that factor during future evaluation periods. Elements of the performance factors are described below.

(1) Quality of service.

- 1-a. Effectiveness and efficiency as determined by the selection of the appropriate level of professional technicians for specific jobs.
- 1-b. Efficiency of repairs in the consumer shop.
- 1-c. The duration of equipment operation without break down or substitution.
- 1-d. Effectiveness of periodical maintenance.

(2) Timeliness.

- 2-a. Speed in responding to the request for repair after notification of equipment breakdown.
- 2-b. Speed of correcting breakdowns.

(3) Management Performance.

3-a. Effectiveness of the management organization in problem anticipation or problem avoidance.

3-b. Effectiveness of cost control.

(4) Documentation.

4-a. Effectiveness of cost recording procedures to provide information about costs per type of equipment, age of equipment, and type of repairs.

(5) Performance rating.

In evaluating Contractor performance, numerical ratings will be used for each factor:

<u>ADJECTIVE RATING</u>	<u>NUMERICAL RATING</u>	<u>CRITERIA</u>
EXCELLENT	90-100	The Contractor's performance exceeds requirements by a substantial margin. The evaluator cannot cite relevant areas for improvement.
GOOD	65-89	The Contractor's performance exceeds total performance requirements. The evaluator may cite one or more areas for improvement, but they are minor in terms of potential program impact.
SATISFACTORY	40-64	The Contractor's performance meets all requirements. The performance is neither significantly superior nor significantly inferior. Areas for improvement are expected in performance of typical availability of this size and complexity.
MARGINAL	21-39	The content and quality of the contractor's performance are close to being adequate, although there are many areas for improvement. No major deficiencies are cited.
UNSATISFACTORY	0-20	The content and quality of the contractor's performance in at least one area are deemed by the evaluator to need substantial improvement. The contractor's performance in an area being evaluated is so deficient that potentially adverse program impact is possible. The need for improvement is such that Government action may be required.

g. Computing the award fee

The total performance rate will be the sum of the factors rated multiplied by .25. The relationship of the award fee pool to be paid (subject to determination of the Award Fee Determination Official) to the performance rating will be as follows:

<u>Performance Rating</u>	<u>Percent of Award Fee Pool</u>
0-20	0
21-100	$\frac{(\text{Rating} - 20) \times 100}{80}$

A performance rating of 20 or below is deemed unsatisfactory. The contractor is not entitled to any award fee for a rating of 20 or below.

h. Maximum Fee

In no event shall the total award fee under this contract exceed xx% of the base contract (same ratio between the award fee and the total contract).

APPENDIX B
QUESTIONNAIRE

To: _____
From: Eidit Givaty

Subj.: Award Fee Type Contract - Suggestion

I am going to suggest, as my thesis, a new type of contract - "Award Fee" that has proven to be a very effective contractual vehicle within the United States Department of Defense. I need your experience to help me identify problems in applying this new type of incentive contract in our acquisition process.

The Award Fee type contract is an incentive type, which can be used with both fixed price and cost type contracts. There is a separate pot of money in the contract that is designated specifically to evaluate and reward the contractor for their performance in specific categories chosen by the Government for special emphasis by the contractor. The award fee categories are in addition to the requirements outlined in the specifications of the contract. Money is reserved for each evaluation period and the Government representatives determine what the contractor's performance has been for the evaluation period. How much money the contractor receives from the award fee pool is the sole determination of the

Contracting Officer or Fee Determining Official based on inputs from the people administering the contract.

The main advantages of this type of contract is the flexibility that it provides to the government because it allows the Government to emphasize specific areas which need improvement or top management concern by the contractor during the contract life. Typical areas reviewed are: cost control, quality assurance, management and so on. Evaluation criteria must be developed and included in the contract for each area which is used to evaluate the contractor's performance.

The evaluation periods are agreed upon by the parties and included in the contract. Before every evaluation period the contractor is provided with the weights associated with each performance factor. At the end of the evaluate period, the evaluation board will recommend the grade to be given to the contractor based on their evaluation of the contractor's performance. If the contractor's performance in one or more of the factors is less than excellent the contractor will get less than the amount designated for the period. The decision on the performance factors weight and on the amount of award to be given to the contractor is a unilateral decision and is not subject to negotiations or disputes by the contractor.

LIST OF REFERENCES

1. MOD Regulation 40.06, Appendix A, Chapter 2, Summary and Translation from Hebrew.
2. The United States Army Logistics Management Center, Type of Contracts Summary, ALM 33-3350-H(B), Fort Lee, VA.
3. Interview between Mr. Zvi Lavie, former Head of Economic Consult in the Department of Procurement and Production (DOPP) in the Israeli MOD and Director for Economic and Cost Analysis DOPP MOD Mission for USA, and the author, April 1991.
4. Brown, Jerry Y., The Award Fee Incentive - Management Considerations Regarding its Application to Research and Developments Contracts, Defense Management College, 76-2, November 1976.
5. FAC 84-7, April 30, 1985, paragraph 16.404-2.
6. Air Force Logistics Management Center, Base-Level Award Fee Guide, Directorate of Contracting, Gunter Air Force Station, Alabama.
7. U.S. Department of Defense and National Aeronautics Space Administration, NHB5104.4, Cost Plus Award Fee Contracting Guide, U.S. Government Printing Office, Washington, DC, 1977.
8. Defense Logistics Studies Information Exchange, Cost-Plus-Award-Fee (CPAF) Evaluation Procedures for GOCO Plants, United States Army Logistics Management Center, Fort Lee, VA.
9. Hunt, Raymond G., Use of the Award Fee in Air Force System and Subsystem Acquisition, School of Management, State University of New York, Buffalo, NY, 1989.
10. Interview between CDR Park, Contract Administration, Subship Bath, and the author, January 1991.
11. Interview between CDR Bolman, Contract Administration, Subship Pascagula, and the author, January 1991.
12. Interview between Ms. Alida Hock, Contract Administration, Subship Long Beach, and the author, January 1991.

13. Interview between Mr. Bob Shaffer, Contract Administration, Naval Supply Center, Puget Sound, Bremerton, WA, and the author, January 1991.
14. Interview between Mr. Robert Morrison, Contract Administration, Subship Seatel, and the author, January 1991.
15. Program Manager's Guide, September 1990.
16. Federal Acquisition Regulation.
17. Sherman, Stanley N., Contract Management: Post Award, Wordcrafters Publications, 1987.
18. Navy Acquisitions Management Training Office, Reference Book for Competition Requirements, NAMTO -5801-RB(B)3, FOSSAC, Norfolk, VA.
19. Department of Defense Directive, 4105.62, September 9, 1985, part E.3.e. and E.4.g.
20. Naval Sea Systems Command, Standard Supervisor of Shipbuilding, Conversion and Repair, USN, Organizational Manual, Department of the Navy, Washington, DC, 1978.
21. Interview between LTCMDR Zvi Weingrat, Head of Integrate Logistics Branch, and the author, February 1991.
22. Department of the Navy, Supervisor of Shipbuilding, Conversion and Repair, USN, SUPSHIPSEAINST 4330.6A, Seattle, WA, July 15, 1986.
23. Headquarter U.S. Army Command, DCSLOG Contracting Division, Handbook for CPAF Contracts, Fort McPherson, GA, April 1985.

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